SENTROL

APPLICATION NOTES

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ACOUSTIC GLASSBREAK SENSORS

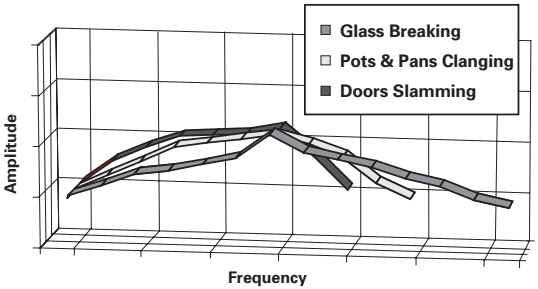
Sentrol has added a number of new ShatterPro™ Acoustic Glassbreak Sensors to its product line: Sensors that combine high detection rates with high immunity to false alarms.

ShatterPro™ II: The Premier Technology.

ShatterPro™ II acoustic glassbreak sensors give you a potent combination of range, reliability, flexibility and ease of use. They offer a 25 foot radius range for extented glassbreak detection. Using patented Pattern Recognition Technology™, the ShatterPro™ is designed to eliminate common false alarms and improve detection of framed glass breaks. It does this by "listening" for the unique sound of glass breaking at numerous points across the entire frequency spectrum, not just one or two points.

ShatterPro™ Plus: 24 Hours a day.

Our new ShatterPro™ Plus, a motion-sensitive glassbreak sensor, was introduced by Sentrol in February 1995. It is an acoustic glassbreak sensor combined with a passive infrared motion detector (PIR) for the purpose of detecting break-ins through glass while eliminating occupant-generated false alarms.



Pattern Recognition Technology™ is designed to eliminate common false alarm sources and improve detection by processing the pattern and timing relationships at points across the entire frequency spectrum.

Choose the right sensor.

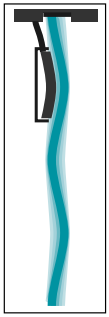
Glassbreak sensors are an important part of an effective perimeter detection system. An important part of your job is choosing the right sensor for a particular application or environment. To make it easier, Sentrol offers you a variety of choices for virtually any glassbreak application. The product comparison chart below can help you make the decision.

Choose the ShatterPro that's right for you

Model	Range to window	Auto test	End-user verification	PRT*	Occupied area perimeter loop	24-hour application/ Built in PIR sensor
ShatterPro II						
5810A	25′	•	•	•	•	
5820A	25′	•	•	•	•	
5825	25′	•	•	•	•	
5845 Wireless	25′	•	•	•	•	
ShatterPro I						
5800 Series	18′			•	•	
ShatterPro Plus						
5885 Series	12′-15′	•	•	•	•	•

*Pattern Recognition Technology

GLASSBREAK SHOCK SENSORS



Sentrol shock sensors use a piezo transducer specifically tuned to the shock frequency of glass breaking.

Millions of Sentrol shock sensors installed around the world give testimony to our product reliability. We've added some new products to give you more choices at installation time and more ways to increase your sales.

Reliable, flexible shock sensors.

Breaking glass produces specific shock frequencies which travel through glass and window frames. When shock sensors "feel" the wave generated by breaking glass, they signal an alarm. These sensors mount directly on the glass or the frame and give you a product virtually immune to false alarms. That means they can operate on windows with heavy drapes or shutters. Shock sensors also provide a visual deterrent to intruders helping to prevent break-in attempts.

Most of Sentrol's shock sensors are solid-state, with no mechanical parts to wear out or fail. We incorporate a piezo transducer specifically tuned to the shock frequency of glass breaking, providing both excellent detection and false alarm immunity.

Choose the right sensor.

To choose the right shock sensor for a particular application or environment, see the product comparison chart below.

Choose the Shock Sensor that's right for you.

Shock Sensors

Model	Coverage	Mounting Site	Powered	Indicating LED	Reed Switch
5115/20	7′	Glass	Self	No	No
5125	10′	Glass	Self	Yes	No
5135	20′	Glass	Wired	Yes	No
5414	10′	Glass or Frame	Self	Yes	No
5415A	10′	Glass or Frame	Self	Yes	Yes
5425	10′	Glass or Frame	Wired	Yes	No
5428	10′	Glass or Frame	Wired	Yes	Yes
Specialty Shock Sensors					
GS600	Varies	Glass, Frame, Wall, or Roof	Wired	Yes	Yes
5422	2′x4′x1′	Metal Enclosure	Wired	Yes	No

INSTALLING ACOUSTIC GLASSBREAK SENSORS IN PRE-WIRE APPLICATIONS

APPLICATION

New construction applications offer the opportunity to pre-wire an acoustic glassbreak sensor, creating an attractive, unobtrusive installation.

Sentrol's ShatterPro II can be used in a pre-wire by using the single gang box kit (5828) or the trim ring. The pre-wire trim ring is almost unnoticeable in pre-wire installations. Its 2-1/2 in. (6.35 cm) diameter size is almost one third smaller than a single gang box plate.

INSTALLATION

USING THE TRIM RING

To pre-wire a Recessed ShatterPro, attach a 1 in. (2.54 cm) inside diameter pipe about 2 1/2" (6.5 cm) long to a stud, in the desired location for the sensor, allowing the pipe to protrude approximately 3/8 in. (.95 cm) beyond the stud. Run sensor cable through the pipe. Don't forget to leave enough slack to pull the wire out later. (This shows the drywall installer that a security sensor is to be placed in this location. The drywall installer will then cut a hole through the sheet rock for the pipe.)

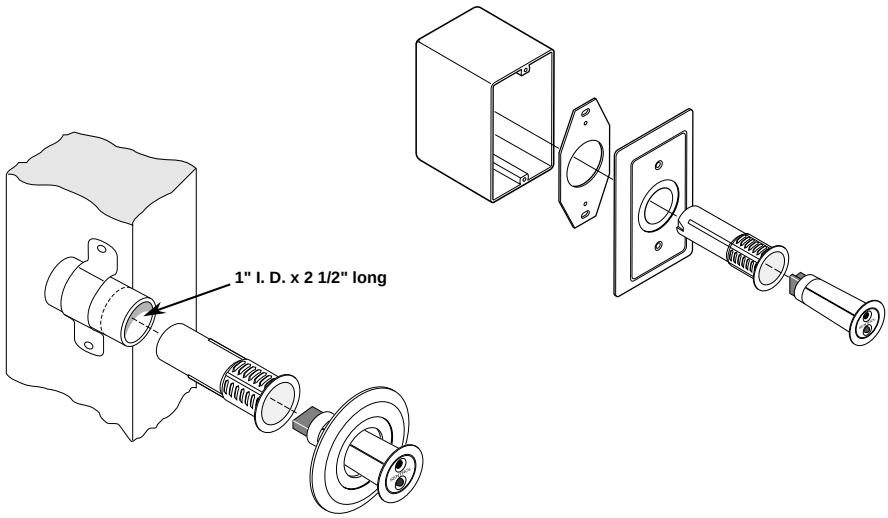
After the drywall is in place, the Recessed ShatterPro II can be inserted into the pipe. After wiring, insert the 1 in. sleeve into the pipe, and the sensor into the sleeve. Use the trim ring, if necessary, to cover any irregularities in the drywall hole.

USING THE SINGLE GANG BOX KIT

This kit includes a plastic front plate, metal plate for alignment and painted finishing screws.

RECOMMENDED PRODUCTS

The 5820A Recessed ShatterPro II acoustic glassbreak sensor, and the 5829 Trim Ring and 5828 Single Gang Box Kit.



INSTALLING RECESSED GLASSBREAK SENSORS WHEN APPEARANCE IS IMPORTANT

APPLICATION

Some customers want their security system to be as inconspicuous as possible. This is especially true in most residential installations, office entry foyers, executive offices, and upscale retail stores.

Sentrol's Recessed ShatterPro II and the Sentrol ShatterSwitch are the least obtrusive acoustic glass break sensors available.

INSTALLATION

The Recessed ShatterPro II acoustic sensor recess mounts in a 1 in. (2.54 cm) hole. See installation instructions on previous page for pre-wired installations.

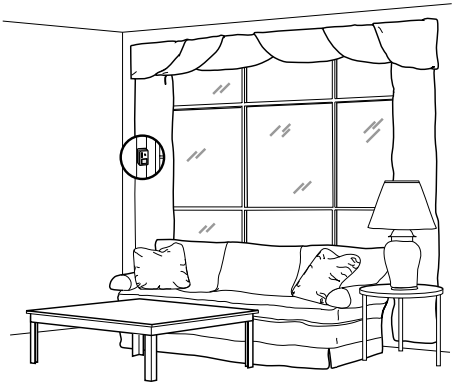
When installing the Recessed ShatterPro II in existing residences and commercial facilities, drill a 1 in. hole through the drywall or ceiling tile, in the desired location. Insert the 1 in. sleeve into the hole, and the sensor into the sleeve. Use the trim ring, if necessary, to cover any irregularities in the drywall hole. (A hole saw makes the neatest hole, but a spade bit with cutting tips will usually work also. A twist drill should be avoided because it tends to tear the sheet rock covering.)

One sensor can protect an entire room. Sensor range is 25 ft. (7.62 m) to the bottom of the glass in a 360˚ pattern, so the sensor can be ceiling mounted, mounted on the opposite wall, or on an adjoining wall. When installed, the Recessed ShatterPro II is little larger than a quarter, and is therefore rarely noticed.

The Sentrol ShatterSwitch is a shorter range sensor which protects up to 10 ft. (3.05 m) of glass. For a hidden appearance, mount the ShatterSwitch on the window frame behind curtains or blinds.

RECOMMENDED PRODUCTS

For protecting a large glass area, use a 5820A Recessed ShatterPro II. For smaller areas of glass, a ShatterSwitch 5725T can be used. A ShatterSwitch 5728T with built in reed switch will also detect the opening of the door or window. An optional 90˚ mounting bracket, part number 5702, may be helpful when mounting the ShatterSwitch on a narrow window frame.



PROTECTING BATHROOM WINDOWS

APPLICATION

In residential installations, bathroom windows may have to be protected as part of a complete perimeter system. Bathrooms are challenging environments for glass break sensors for two reasons. 1) Humidity can be very high when a shower or tub is used. 2) Bathrooms are acoustically live rooms — they are typically small, with bare floors and many sound-reflecting surfaces. Acoustically live rooms have a greater potential for false alarms when acoustic glassbreak sensors are used.

Humidity can also be a problem for most glassbreak sensors. Sentrol offers a hermetically sealed shock sensor, the GS610, that works with a separate analyser, the GS614. Shock sensors have fewer problems than acoustic sensors in high humidity environments.

INSTALLATION

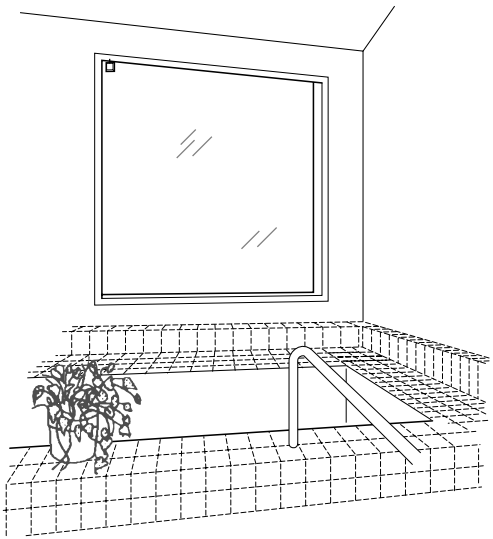
Since shock sensors are not "listening," they are the preferred choice for acoustically live rooms, such as bathrooms. For best false alarm immunity in bathrooms, if possible use a hermetically sealed shock sensor mounted on the glass or a frame mounted shock sensor.

If an acoustic sensor is to be used, select a sensor with range comparable to the size of the room. In a 10 ft. (3.05 m) bathroom, for example, it is better to use a sensor with a 10 ft. range than a 25 ft. (7.5 m) range. The 25 ft. sensor is too "hot" for such a small, acoustically-live room, and would be vulnerable to false alarms.

RECOMMENDED PRODUCTS

The GS610 shock sensor, with 12 ft. (4 m) of range, provides excellent false alarm immunity and humidity tolerance. The GS611 frame mounted shock sensor with built-in reed switch can protect windows that open. Both sensors work in conjunction with the GS614 analyser.

The 5810A-W4 reduced sensitivity ShatterPro™ II with advanced Pattern Recognition Technology™ can also be used in some bathroom applications.



PROTECTING SKYLIGHTS

APPLICATION

Skylights can be a vulnerable entry point to many homes and businesses. Many skylights are made of Plexiglas™, Lexan™, or other type of plastic. This eliminates the option of using acoustic glassbreak sensors since they are designed for detecting breaking *glass*, not plastic.

INSTALLATION

For protecting *plastic* skylights, mount a shock sensor in a corner of the skylight 1 in. (2.54 cm) from the frame.

Note: The plastic material in the skylight will absorb much of the shock energy from a break. The range of a shock sensor on plastic is typically 50% less than the range on glass. A shock sensor with a 7 ft. (2.13 m) range on glass would generally have a 3-1/2 ft. (1.07 m) range on a plastic skylight.

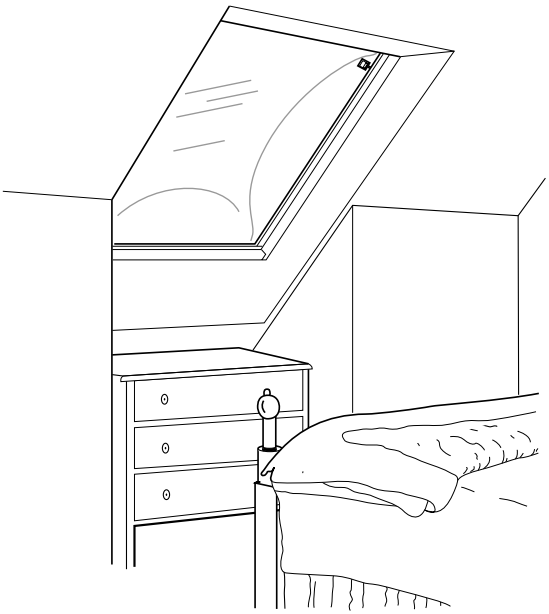
When protecting plastic skylights, it is essential to thoroughly test the sensor by rapping the far opposite corner of the skylight with the handle of an 8"-10" screwdriver. If the sensor trips to the rap test, its range is sufficient to detect an actual break-in.

An acoustic glassbreak sensor can be used for *glass* skylights. The sensor can be mounted on any wall within range of the skylights, or on the ceiling.

Use a Sentrol 5115/20 shock sensor for plastic skylights if 3-1/2 ft. (1.07 m) of range is sufficient, or use two sensors mounted in opposite corners if additional range is required.

RECOMMENDED PRODUCTS

For glass skylights, another option is a 5725T ShatterSwitch, if it can be mounted within range.



PROTECTING ROOMS WITH CURTAINS AND BLINDS

APPLICATION

Many homes and offices have curtains or blinds on at least some of the windows. Sentrol shock sensors provide glass break detection regardless of the type of window coverings present. With proper placement, Sentrol's acoustic sensors may also be used when blinds and light drapes are present.

INSTALLATION

Glass mounted or frame mounted shock sensors are unaffected by curtains and blinds. The sensor should be mounted in the corner of the glass, 1 in. (2.54 cm) from the frame.

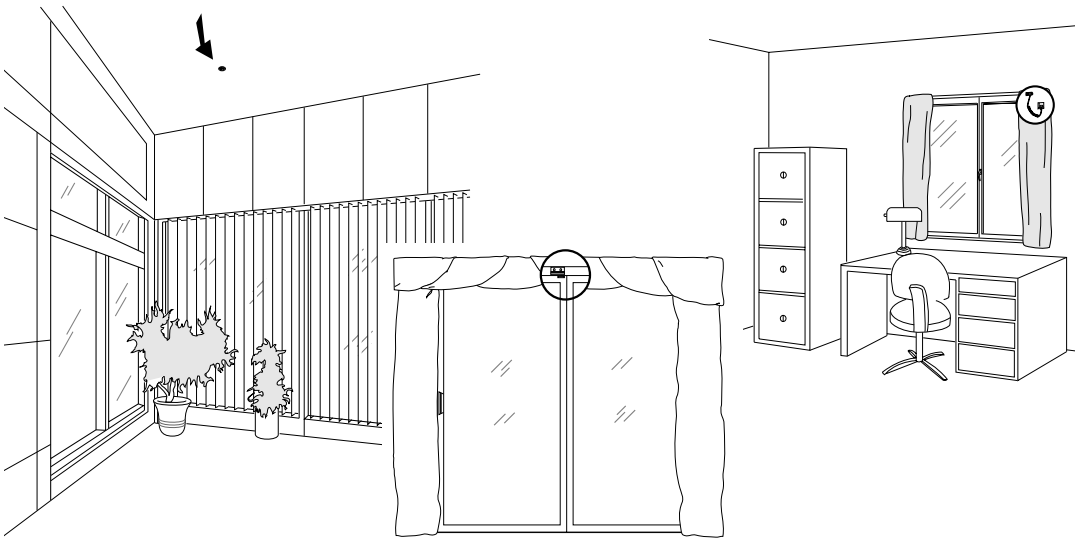
Sentrol's acoustic ShatterSwitch mounts behind curtains or blinds, and can protect multiple windows. Mount the ShatterSwitch on the window frame to protect one or more windows. It will protect a 10 ft (3.05 m) area. However, its range can be reduced if window coverings are touching the glass.

Sentrol's acoustic ShatterPro II can be mounted anywhere in a room except on the frame (as long as the glass to be protected is within its range), and can detect breaking glass when blinds and *light* drapes are present. Mount the ShatterPro II on the ceiling, on an adjoining wall, or on a wall opposite from the glass to be protected. Mounting the ShatterPro on the same wall as the glass should be avoided because the signal may be dampened before it bounces back to the sensor.

Test the range with the 5709C tester held behind the closed curtains or drapes. If the sensor does not trip, it will be necessary to relocate the sensor closer to the protected glass, or use additional sensors.

RECOMMENDED PRODUCTS

For shock sensor protection, use a 5115/20 or a 5425 shock sensor. For acoustic glassbreak detection, use a ShatterSwitch 5725T. Or, use a 5728T ShatterSwitch with built-in reed switch to also detect forced opening of the door or window. For a larger range, use the ShatterPro II 5810A or the Recessed ShatterPro II 5820A.



PROTECTING LARGE ROOMS WITH MULTIPLE WINDOWS

APPLICATION

Most large rooms have several windows, often widely spaced from each other. The most economical way to protect large rooms with multiple windows is with a single, long range acoustic sensor. However, care should still be taken to match sensor range to room size. A sensor whose range extends well beyond the boundaries of the room is acoustically "hot" and vulnerable to false alarms.

INSTALLATION

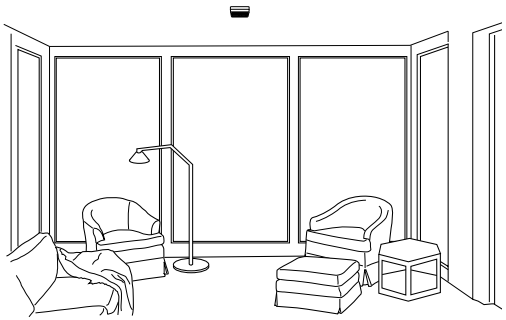
For protecting glass on more than one wall, ceiling mounting is most desirable. Make sure that all protected glass is within the radius coverage of the sensor. For any glass to be protected by an acoustic sensor, the distance from the bottom of the window to the sensor must be no more than the sensor's maximum range.

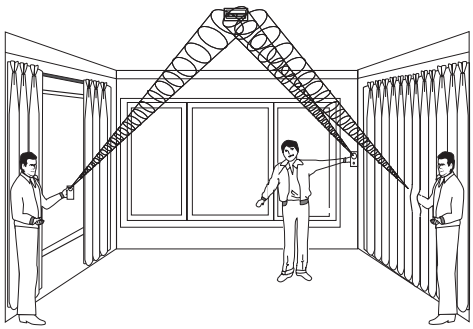
For protecting one wall of glass, mounting an acoustic sensor on the opposite wall is best (if *all* the glass to be protected is within the sensor's range).

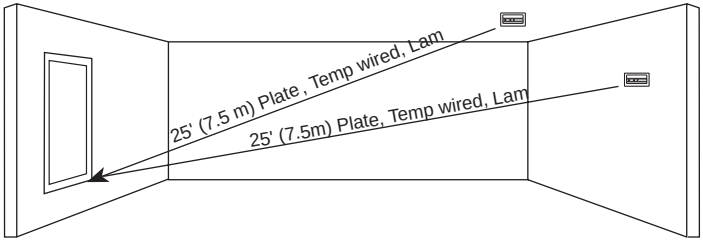
Always confirm range with a Sentrol 5709C hand-held tester.

RECOMMENDED PRODUCTS

For glass areas less than 10 ft. (3.05 m) or behind heavy curtains use a Sentrol 5725T ShatterSwitch mounted on the frame. For protecting large glass areas, a single 5810A ShatterPro II, with its 25 ft. (7.6 m) range, can protect up to four walls of glass. The 5820A Recessed ShatterPro II mounts in a 1 in. (2.54 cm) hole in the ceiling, opposite wall or adjacent walls.







PROTECTING SMALL ROOMS WITH GLASS

APPLICATION

False alarms are more likely in small, acoustically live rooms such as small kitchens, glass entry airlocks, stairwells, small glass offices, and utility rooms. For best false alarm immunity the range of the sensor should be matched to the size of the room and glass area to be protected.

Shock sensors offer the best false alarm immunity in acoustically live rooms, and are the most economical if there is only one window to protect. Acoustic sensors will provide good false alarm immunity if selected properly.

INSTALLATION

If it can be avoided, do not install acoustic sensors with large range into small rooms. A sensor with 25 ft. (7.5 m) diameter range into a 10 ft. (3.05 m) room increases the risk of false alarm. Choose an acoustic sensor with range comparable to the size of glass to be protected.

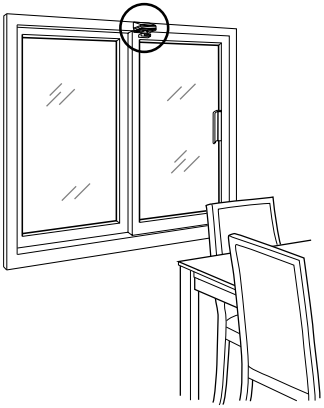
In a small room with just one window, the Sentrol 5115/20 shock sensor provides economical protection and false alarm free operation in virtually all acoustically live applications. The 5414 or 5415A frame mount shock sensors are also a good choice. The 5415A has a built-in reed switch to protect windows that open.

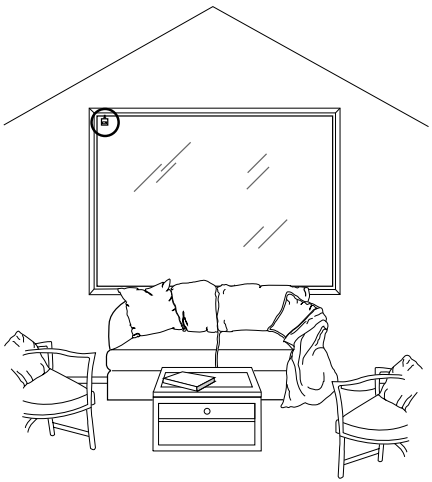
For multiple windows the 5725T (ShatterSwitch) or the 5810A-W4 reduced sensitivity (ShatterPro II) can be considered for small rooms.

Verify correct sensor placement with the Sentrol 5709C hand-held tester.

RECOMMENDED PRODUCTS

To protect just one window, use the 5115/20 shock sensor. For protecting multiple windows in a small room, use a 5810A-W4 reduced sensitivity ShatterPro II or multiple shock sensors. The 5415A or 5426 frame mount shock sensors with built-in reed switches can be used to protect windows that open.





PROTECTING OCCUPIED AREAS

APPLICATION

Glassbreak sensors can be armed while rooms are occupied to alert the family inside a home or the employee working late or on the weekend.

Occupied area protection means sensors are armed when the *perimeter loop* of the system is armed. In contrast to 24-hour loops, which are armed continuously, all day and all night, a perimeter loop containing glassbreak sensors is armed only when the magnetic contacts on doors are armed — generally, after hours, when buildings are quieter.

Today's advanced acoustic sensors provide excellent false alarm immunity in occupied areas if installed on the *perimeter loop*. Sentrol shock sensors and the ShatterPro™ Plus 5885 provide 24-hour loop protection without false alarms.

INSTALLATION

For *24-hour loop* protection, mount Sentrol's 5115/20 shock sensors on the glass to be protected, 1 in. (2.54 cm) from the corner.

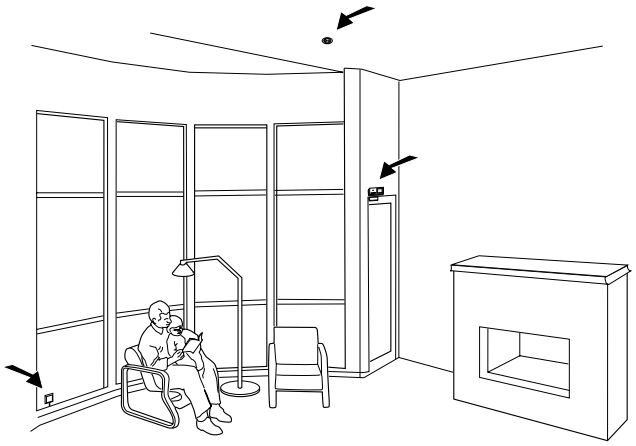
Frame mounted shock sensors such as the 5425 will also provide 24 hour loop protection without false alarms if sensitivity is set properly. Sentrol also offers a motion sensitive acoustic glassbreak product, the 5885, for use in 24 hour applications (see page 24).

For *perimeter protection* using acoustic sensors, use a ShatterSwitch for protecting glass areas smaller than 10 ft. (3.05 m). Use Sentrol's advanced ShatterPro II to protect large glass areas on the perimeter loop.

To test shock sensors, rap the protected glass with the handle of a screwdriver in the corner farthest from the sensor. This should trip the sensor. Verify range coverage of acoustic sensors with the Sentrol 5709C hand-held tester.

RECOMMENDED PRODUCTS

For shock sensor protection, the 5115/20 provides the best false alarm immunity with the 5425 also a good solution. The ShatterSwitch 5725T, the ShatterPro II 5810A, and the Recessed ShatterPro II 5820A provide excellent false alarm immunity in occupied areas on the perimeter loop. The ShatterPro Plus 5885 is also recommended for 24 hour acoustic glassbreak coverage.



PROTECTING A SINGLE WINDOW WITH WIRELESS COMPATIBLE SENSORS

APPLICATION

A wireless compatible shock sensor can be used for economical protection of rooms with a single window. For glass doors or windows which open, use a wireless compatible sensor with a built-in reed switch.

INSTALLATION

Sentrol's 5115/20 wireless compatible shock sensor is a two-wire device which draws no power, and therefore has no impact on the transmitter's battery life. Mount the 5115/20 on the glass, 1 in. (2.54 cm) from the corner. Range is 7 ft. (2.13 m) radius out from the sensor.

The 5414 or 5415A frame mounted shock sensor can protect two fixed windows in the same window opening. An internal lithium battery powers the sensor for up to 15 years, so there is no draw on the transmitter battery. Range for the 5414 or 5415A is up to 10 ft. (3.05 m). Frame mounting affects sensor range, so it is essential to test the sensor by rapping the glass on the side opposite the sensor. The sensor must trip to the rap test to ensure proper operation. The 5415A includes a built-in reed switch and a magnet to protect against opening the window.

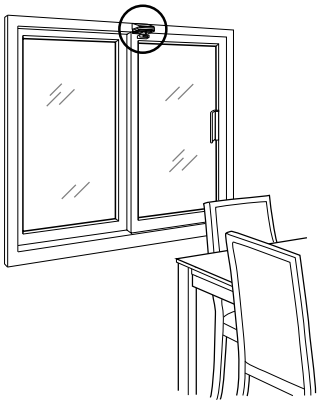
For protecting glass doors or windows that open, mount a Wireless ShatterSwitch acoustic sensor within the window bay. The ShatterSwitch will protect a 10 ft. (3.05 m) area of glass. Test the sensor's range using the Sentrol 5709C hand-held tester.

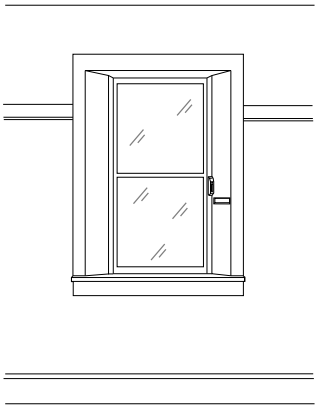
Note: The Wireless ShatterSwitch shares the battery of the transmitter. Its current draw of up to 15 micro amps may reduce transmitter battery life by up to 50%. Since other devices are likely to need battery replacement before the ShatterSwitch, this is rarely a problem.

RECOMMENDED PRODUCTS

Use the Sentrol self-powered 5115/20 for glass-mounted applications, or the lithium battery powered 5414 shock sensor for frame mounting. Use the 5415A shock sensor with built-in reed switch to protect windows that open.

For acoustic sensor protection use the Wireless ShatterSwitch 5741. Use the 5742 Wireless ShatterSwitch with built-in reed switch to protect glass doors and windows that open.





PROTECTING MULTIPLE WINDOWS WITH WIRELESS COMPATIBLE SENSORS

APPLICATION

In many installations it is desirable to protect rooms with several windows. This can be accomplished economically using one transmitter and a wireless compatible acoustic sensor.

Sentrol's Wireless ShatterPro acoustic glassbreak sensor combines excellent false alarm immunity and consistent detection with wireless compatibility. The Wireless ShatterPro has a coverage radius of 20 ft. (6.1 m), [40 ft. (12.2 m) diameter] if ceiling mounted. A single sensor, therefore, can typically protect an entire room.

INSTALLATION

Mount the transmitter inside the back box of the Wireless ShatterPro 5845, which hides the transmitter and provides an integrated look. If desired, the transmitter can also be mounted next the sensor module on the bracket included.

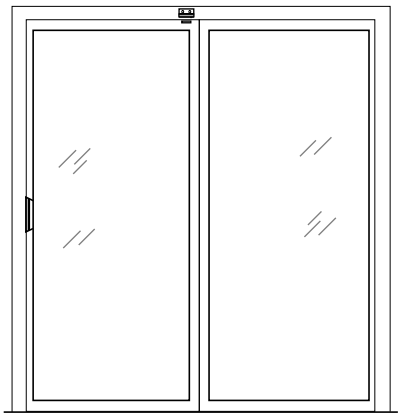
Note: The sensor shares the transmitter battery, which may reduce battery life by up to 50%. Since other devices are likely to need battery replacement before the Wireless ShatterPro, this is rarely a problem.

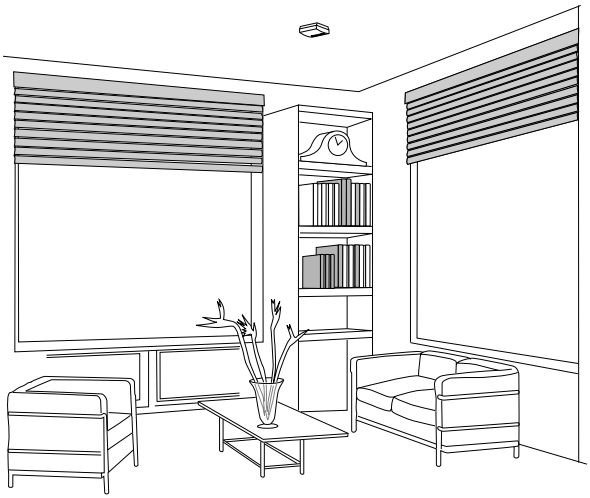
Position the Wireless ShatterPro anywhere in the room except within the frame. The best location for detection is directly opposite the glass. Since wireless sensor placement is not determined by wire routing, opposite wall mounting is a more practical option than with hard wire installations.

Verify sensor range and placement with the 5709C hand-held tester.

RECOMMENDED PRODUCTS

For glass areas smaller than 10 sq. ft. (3 sq. m) use the Sentrol's Wireless ShatterSwitch 5741. For forced open protection as well, use the 5742 with built-in reed switch. For glass areas larger than 10 sq. ft., or for an integrated appearance, use the Wireless ShatterPro 5845.





PROTECTING SMALL WINDOWS, FRENCH DOOR GLASS, FRENCH WINDOWS

APPLICATION

Small French door type windows are common in older homes. The glass panels are typically 6 in. x 9 in. (15.2 cm x 22.9 cm) or larger. Small windows have unique properties when they break. First, the sound output may be low since there is not much glass to break. Second, the glass may just pop out of the frame when hit, rather than breaking. This is particularly true of glass in old wooden frames. Detection in both cases can be difficult.

Modern French-type windows are usually two large panes of glass with false dividers between them. The dividers have little effect from a detection standpoint. Detection of false French windows is the same as with standard size windows, and no special precautions need to be taken.

INSTALLATION

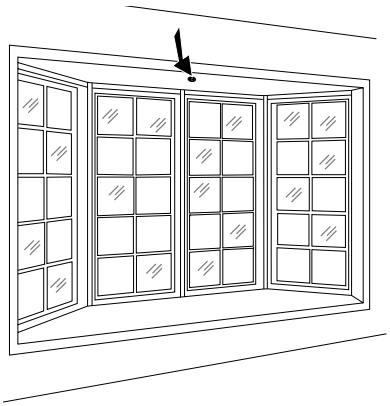
The 5725T ShatterSwitch provides good protection of small windows if installed within 4 ft. of the glass to be protected. Most acoustic sensors are only rated down to a minimum glass size of 1 ft. x 1 ft. (30.5 cm x 30.5 cm) or larger. If protecting a smaller window than the sensor's minimum rated size, the capture rate will decrease by as much as 50%. *The customer should be informed that sensor detection has been compromised.* With small windows, it is best to locate the acoustic sensor close to the protected glass.

More consistent detection can be achieved using a frame mounted shock sensor. Often several sensors will be needed to protect a frame of several windows. Take particular care to thoroughly test sensor range by rapping on the windows farthest from the sensor. The sensor must trip to the rap test. Use additional sensors on each side of the glass until a rap to any pane of glass will trip at least one shock sensor.

RECOMMENDED PRODUCTS

For acoustic protection of smaller windows, use a ShatterPro II 5810A or 5820A. The ShatterPro™ II is not recommended for windows smaller than 1 ft. x 1 ft. (30.5 cm x 30.5 cm). The 5725T ShatterSwitch can be used if mounted within 4 ft. of the protected glass.

The 5425 shock sensor can be mounted on the frame to protect multiple panes of small glass. Several sensors may be required.



PROTECTING GLASS DOORS AND WINDOWS THAT OPEN

APPLICATION

Protecting glass doors and windows that open can be a challenge because of the difficulty of running wires from the glass to the frame. Glassbreak and forced-open protection can, however, be achieved with a single detector.

INSTALLATION

For shock sensor protection, both on-the-glass and frame-mounted sensors can be used. The 5120C shock sensor ships with 3 ft. (.91 m) of coil cord. The sensor mounts in a corner on the glass, and the coil cord reaches to a termination on the frame. As the window or door opens, the coil cord stretches as needed.

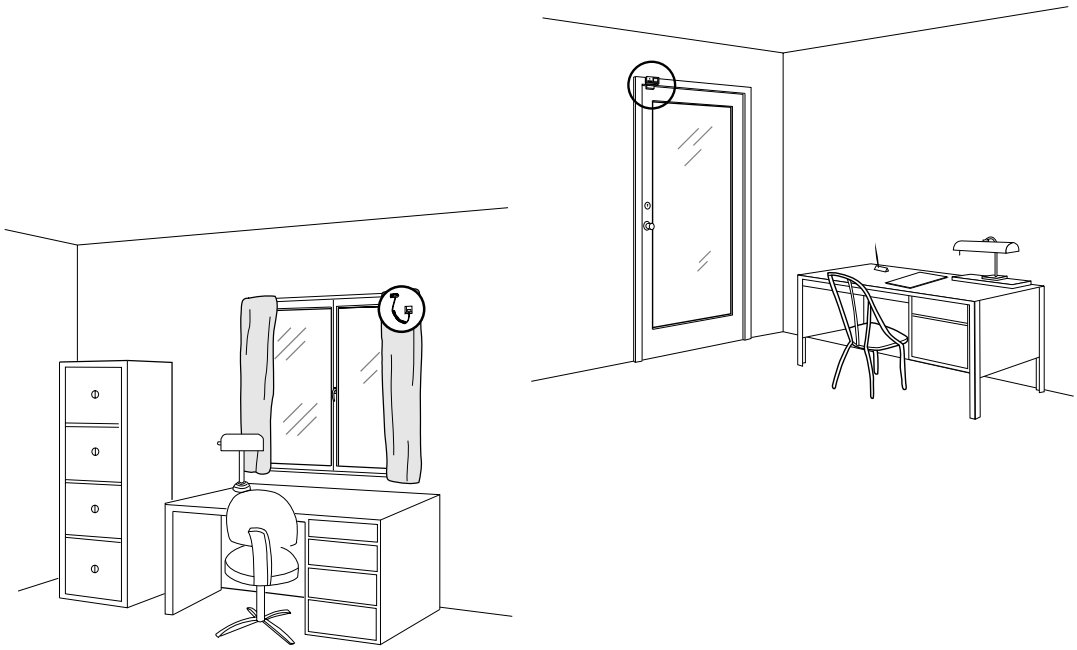
Frame-mounted shock sensor models are available which also have a built-in reed switch with magnet. These sensors provide both glass break detection as well as forced open detection. Mount the sensor's magnet on the door or moveable window, and mount the sensor on the frame as close as possible to the magnet.

For acoustic sensor protection use a Sentrol ShatterSwitch with built-in reed switch and magnet. This provides coverage of 10 ft. (3.05 m) of glass, including multiple windows, while detecting forced opening as well. The ShatterSwitch should be centered at the top of the glass, or as near to center as practical for magnet location.

RECOMMENDED PRODUCTS

Use a 5120C shock sensor with coil cord for on-the-glass protection. The 5426 frame-mount shock sensor with built-in reed switch provides double protection.

The ShatterSwitch is available in standard configuration, part number 5725T, and also with built-in reed switch, part number 5728T. A 90° mounting bracket, part number 5702, is useful on narrow frames.



PROTECTING INSULATED GLASS

APPLICATION

Many modern buildings use windows that contain two panes of glass divided by an air space for added insulation. This insulated glass can be protected by shock and acoustic glassbreak sensors. As long as the inside pane of glass breaks, the sensor will detect the break. It is possible to break the outside pane of glass without setting off an alarm.

INSTALLATION

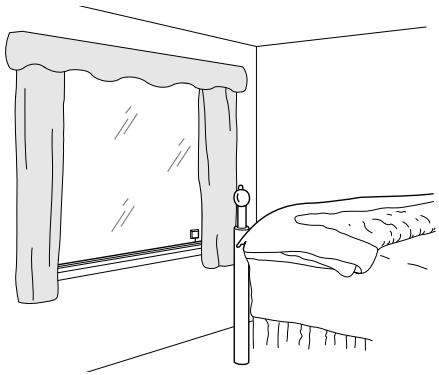
Installation for thermopane windows is the same as for other windows. Shock sensors should be mounted in the corner or frame mounted. Acoustic sensors should be mounted so that the protected glass is within range.

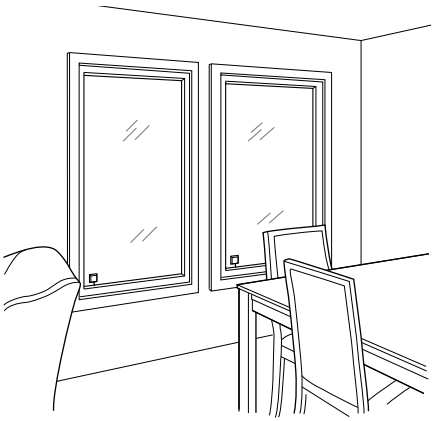
Rap test the shock sensors. Test acoustic sensors with the Sentrol 5709C hand-held tester.

RECOMMENDED PRODUCTS

Use a 5115/20 shock sensor for on-the-glass protection. The 5426 frame-mount shock sensor with built-in reed switch provides double protection for windows which open.

Use the 5725T ShatterSwitch, 5728T with built-in reed switch, or 5810A ShatterPro II for acoustic protection.





PROTECTING STOREFRONT GLASS

APPLICATION

Merchants often want glass break protection on their front windows, in order to have the alarm sound as soon as the glass breaks. While this does not prevent "smash and grab" losses, it will prevent most burglars from actually entering the building.

INSTALLATION

For storefront windows shock sensors are *always* the best choice. A shock sensor is visible from the outside, which might deter burglars before the glass is broken. And shock sensors are less likely to be set off by street noise, or by rolling metal shutters, than are acoustic sensors. Due to range limitations, however, shock sensors can be more expensive to install. Multiple sensors may be required to cover the same glass area that one acoustic sensor can protect.

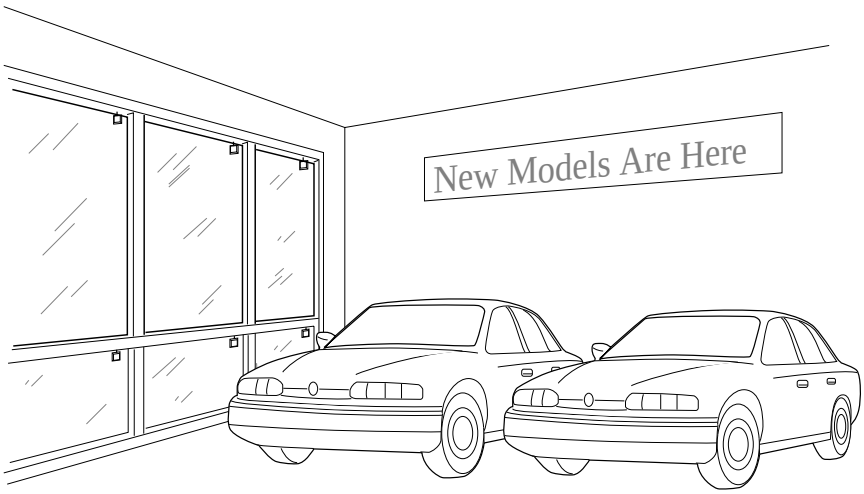
Acoustic sensors can be successfully used to protect storefront glass if store personnel are properly trained to not block the glass. Acoustic sensors must be able to "see" all the glass that they are protecting. If a sensor's line of sight to the glass is blocked by store displays or furniture, the sensor is unlikely to detect a break-in through the blocked glass.

If selecting an acoustic sensor, in stores which do not have window displays, mount a ShatterPro in the ceiling inside the room. For stores with window displays, mount a ShatterSwitch directly above the glass.

RECOMMENDED PRODUCTS

Use the 5115/20 for on-the-glass shock sensor protection, or use the 5425 for frame mounting.

For acoustic sensor protection, use a ShatterPro II 5810A, a Recessed ShatterPro 5820A, or a ShatterSwitch 5725T.



PROTECTING STORE WINDOWS WITH ROLL-UP METAL SHUTTERS

APPLICATION

Retail shops in high crime areas will often have roll-up metal shutters to protect the glass windows at night. The clanging and banging sounds of these shutters can cause acoustic sensors to false alarm. False alarms can also be caused by people rattling the shutters, and by other vibrations.

INSTALLATION

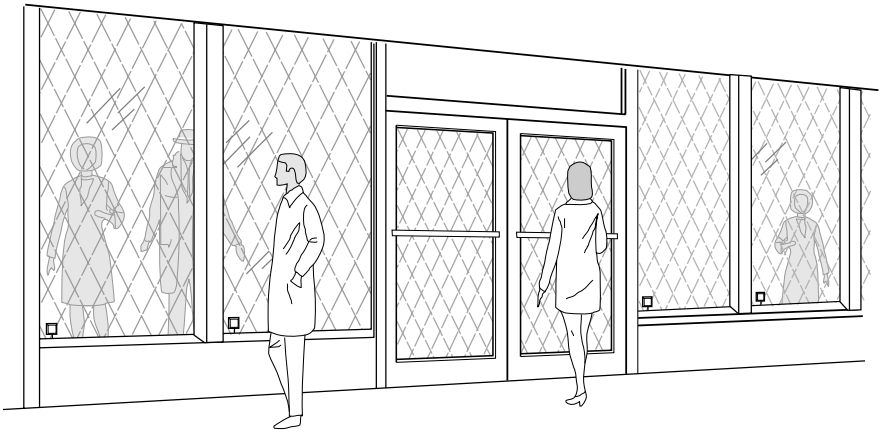
For windows with roll-up shutters, shock sensors provide the best false alarm immunity. On-the-glass shock sensors have better false alarm immunity than frame-mounted shock sensors, and are therefore the preferred choice. On-the-glass sensors are also easily visible from the outside, which may help deter a break-in.

If using acoustic sensors, use only an advanced sensor with excellent false alarm immunity. Mount the sensor back into the room, away from street and roll-up shutter sounds. An advanced sensor mounted 15 ft. back from the glass should provide false-alarm-free operation in most applications.

RECOMMENDED PRODUCTS

Use the 5115/20 for on-the-glass shock sensor protection, or use the 5425 for frame mounting.

Use a ShatterPro II 5810A, or a Recessed ShatterPro II 5820A, for acoustic sensor protection.



PROTECTING DISPLAY AND JEWELRY CASES

APPLICATION

Museum curators and retailers with glass display and jewelry cases often want the extra protection of glassbreak sensors inside their cases. Both shock sensors and acoustic sensors are options for such protection.

Note: Acoustic glassbreak sensors sealed within a glass box are extremely "live," and are vulnerable to false alarms if the case is accidentally struck by keys or other metal objects. For this reason, acoustic sensors are appropriate only if the sensor will be armed while the premises are *not* occupied.

INSTALLATION

For occupied or 24-hour protection of display cases, it is best to use shock sensors. A frame mounted shock sensor will provide the most economical protection if there is more than one piece of glass to protect. To prevent sensor tampering, the glassbreak sensors must be placed inside the case.

Test the installation by rapping the protected glass farthest away from the sensors. If the shock sensor does not trip to this rap test, it may not trip to an actual break. Add additional sensors until at least one sensor trips on each rap test.

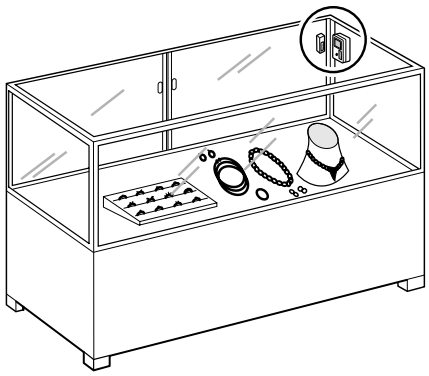
Note: An actual glass break generates twice as much energy to the shock sensor as a rap test.

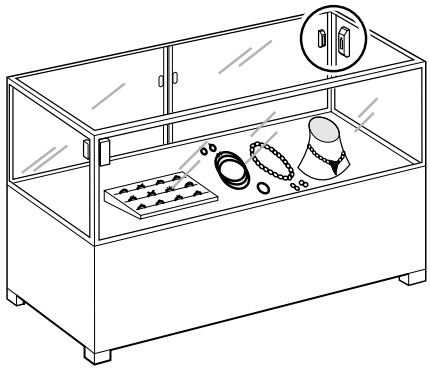
More than one shock sensor may be needed to protect all the glass in a display case. If, for cosmetic reasons, this is not a viable solution, a single acoustic sensor may be used. To protect a glass case when a room is *not* occupied, use an acoustic sensor with limited range, such as the Sentrol ShatterSwitch , with its 10 ft. (3.05 m) range. The ShatterPro II is not recommended for display cases because it is not designed to detect the prying of the case tops.

RECOMMENDED PRODUCTS

For acoustic sensor protection, the ShatterSwitch 5725T by Sentrol will generally protect an entire case. A 5728T with built-in reed switch can be used to detect forced opening of the access door.

The 5115/20 shock sensor mounts directly onto the glass, and is the best choice if only one piece of glass is to be protected. For protecting multiple glass walls in the case, use one or more 5425 shock sensors. Use a 5426 with built-in reed switch to detect the forced opening of the access door.





PROTECTING METAL ENCLOSURES

APPLICATION

Sentrol's 5402 shock sensor eliminates the need for costly lined boxes or placement of security system controls in a vault for UL mercantile applications. The sensor mounts inside the enclosure on the hinge side of the box for best response.

INSTALLATION

Locate the sensor inside the enclosure on the side wall on or near the hinge. If the hinge runs the length of the side, center the sensor vertically. If the enclosure has multiple hinges, place the sensor next to the hinge nearest the middle of the enclosure.

Peel back paper from one side of adhesive tape pad and press it onto back of sensor. The tape pad must be flat against the plastic case. Use a 50/50 solution of isopropyl alcohol to clean the mounting area. Dry the mounting area. Peel off the backing paper from the tape pad and press the sensor against the metal. The tape will fully adhere within 24 hours.

Wire the sensor to the loop according to wiring instructions.

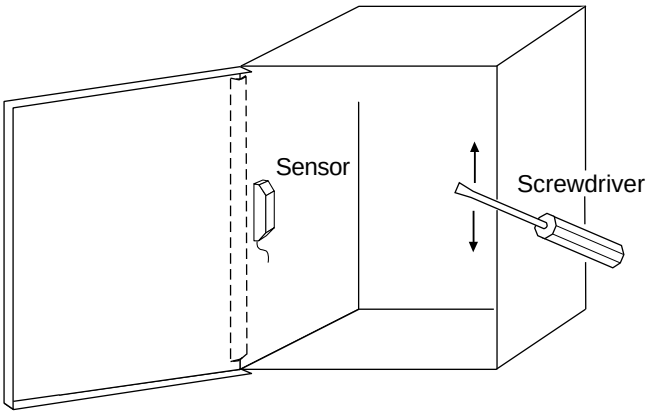
To test the sensor, view the LED or see if the panel detects the alarm. Then using the metal shaft of a medium-size screwdriver, lightly scrape back and forth against the edge of the metal enclosure farthest from the sensor.

If the 5402 does not respond, a second sensor may be required.

Note: The 5402 has an estimated 15 year battery life. Test the sensor biannually to ensure proper operation. The 5422 is a 4 wire sensor using external power.

RECOMMENDED PRODUCTS

5402, 5422



PROTECTING THICK GLASS

APPLICATION

Acoustic sensors and shock sensors are rated for glass thicknesses up to 1/4 in. (6.4 mm). Some installations may have glass thicker than 1/4 in., yet the customer still wants glass break detection.

INSTALLATION

The 5725T ShatterSwitch can be used to protect thicker glass with some reduction in range. The ShatterPro II is not designed to protect thicker glass. Its effectiveness will be reduced if protecting thick glass. *If ShatterPro II acoustic sensors are used, the end-user should be warned that capture rate is reduced as much as 50%.*

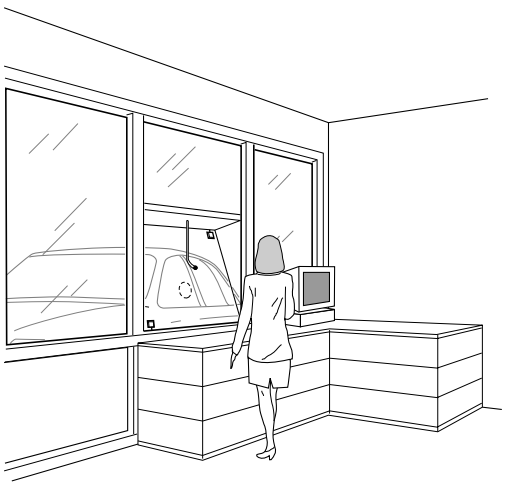
Shock sensors may be used on thick glass if they are thoroughly tested. Thick glass absorbs much of the shock energy from a break, and therefore is more of a challenge for glass break detection.

For on-the-glass shock sensors, mount the sensor in a corner of the glass approximately 1 in. (2.54 cm) in from the corner. Test the sensor by rapping the far opposite corner of the glass with a screwdriver handle. The sensor must trip to this rap test. If the sensor fails to trip, mount additional sensors in the other corners until at least one sensor trips to rapping the glass at every point on the window.

Frame mounted shock sensors are tested in the same manner. Sensors such as the 5425 have a sensitivity adjustment to increase range of the sensor if needed. For best false alarm immunity, set sensitivity no higher than half-way. Use additional sensors as needed.

RECOMMENDED PRODUCTS

For shock sensor protection use the 5115/20 mounted on the glass, or the 5425 mounted on the frame. The 5426 shock sensor also has a built-in reed switch with magnet for detecting forced opening of a door or window. For acoustic sensor protection, use the 5725T ShatterSwitch and mount within six feet of the farthest point of the protected glass.



PROTECTING WINDOWS WITH FILM

APPLICATION

In sunny climates some commercial windows will have a tinting film attached to the glass.

Sometimes, commercial windows also have a plastic film attached to the glass to prevent shattering from impacts or bullets. This "armor-coated" glass can be found in bank drive-up windows, in some retail stores, and in other vulnerable buildings.

INSTALLATION

Acoustic sensor range is not effected by tinting film, so any acoustic sensor can be used.

Shock sensors are also unaffected by tinting film. For on-the-glass sensors, cut away the film where the sensor will be placed so that the mounting tape is affixed to the glass itself and not to the film.

Armor-coating will reduce acoustic sensor range by about 50%. This is particularly true if the armor-coating is applied to laminated glass. If protecting armor-coated glass, mount the acoustic sensor 50% closer than the specified range, and confirm coverage with the hand-held tester. Additional sensors may be needed since the sensors are mounted closer to the glass.

Armor-coated glass will also reduce shock sensor range. When using shock sensors, thoroughly test the installation by rapping the glass in the far opposite corner of the glass from the sensor. If the sensor does not trip to the rap test, add additional sensors at other corners of the window until at least one sensor trips to a rap at any place on the window.

RECOMMENDED PRODUCTS

Any Sentrol shock or acoustic sensor, as long as the installation guidelines above are followed.

	Plate, Tempered Laminated Glass	Tinted	Armor Coated
Acoustic Spec. Range	100%	100%	50% or less
Shock Sensors Required	1	1	Double the sensors

PROTECTING ROOMS WHEN CLEANING CREWS ARE PRESENT

APPLICATION

Often, the perimeter loop of the security system is armed when cleaning crews are in a building. If acoustic sensors are armed, they will be listening to all sounds, including those made by night cleaning crews. Acoustic sensors are most likely to false alarm to multiple sounds. The cleaning crews produce a combination of sounds from vacuums, floor polishers, and clattering garbage cans, all of which combine to cause false alarms for some sensors in some applications.

INSTALLATION

Shock sensors provide the best false alarm immunity for a building when it is occupied. Shock sensors are often economically impractical, however, due to the number of windows to be protected. Also, in applications where appearance is important, the use of multiple shock sensors may not be an option.

Sentrol's ShatterPro Plus 5885 provides an acoustic solution to noisy cleaning crews. The 5885 is a motion sensitive acoustic sensor that combines a passive infrared sensor with a glassbreak sensor. When a noisy occupant enters the field of view of the PIR the glassbreak sensor is disabled for 70 seconds. This prevents false alarms due to loud noises such as vacuums or floor buffers. The glassbreak sensor is activated after the occupant leaves the field of view. The 5885 makes 24 hour acoustic applications possible.

RECOMMENDED PRODUCTS

For false alarm immunity when night cleaning crews are present, the ShatterPro Plus 5885 will provide trouble-free performance in most applications. Other reliable solutions are shock sensors like the 5120 or 5414.

PROTECTING PLASTIC WINDOWS

APPLICATION

Many windows in commercial installations are made of Plexiglas™, Lexan™, or other types of plastic. Unfortunately, this eliminates the use of acoustic glassbreak sensors, since they are designed to detect breaking *glass*, not plastic. For protecting plastic windows, it is safest to use a shock sensor.

Note: The plastic material will absorb much of the shock energy from a break. The range of a shock sensor on plastic is typically 50% less than the range on glass. A shock sensor with 7 ft. (2.13 m) of range on glass would generally have 3-1/2 ft. (1.07 m) of range on a plastic window or skylight.

INSTALLATION

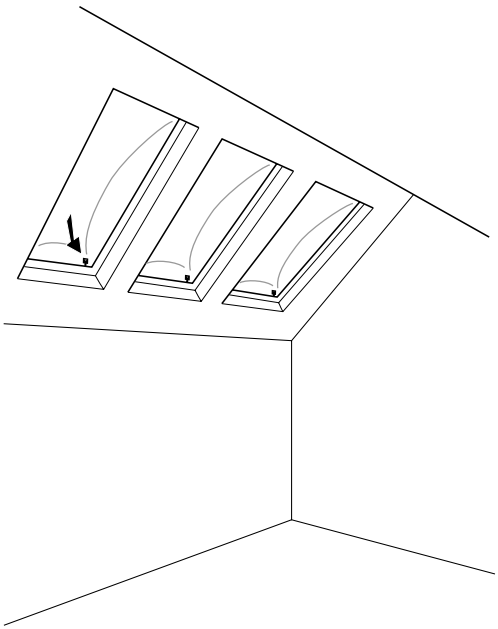
If you are unsure whether the window to be protected is plastic or glass, look for scratches. Scratches typically indicate a plastic window.

Mount the shock sensor in a corner of the window, 1in. (2.54 cm) from the frame. Shock frequencies concentrate in the corners.

When protecting plastic windows, it is essential to thoroughly test the sensor by rapping the far opposite corner. If the sensor trips to the rap test, the sensor range is sufficient to detect an actual break-in.

RECOMMENDED PRODUCTS

Use a Sentrol 5115/20 shock sensor if 3-1/2 ft. (1.07 m) range is sufficient. Use two sensors mounted in opposite corners if additional range is required.



CHOOSING THE APPROPRIATE PIR

The following chart is intended to help you match the appropriate Sentrol PIR with your particular installation. The charts on pages 32 and 33 list the specifications for the PIR.

SENTROL PIR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
Model 6351 **Sharpshooter™** **DesignLine™**	35' x 35' room Wall or corner mounted 90° wide angle Pet alley, vertical barrier Mounts 1/8" from ceiling	35' x 35' room Wall or corner mounted 90° wide angle Pet alley, vertical barrier Mounts 1/8" from ceiling	
Model 6255 **SureShot™**	30' x 30' room Wall, corner or ceiling Pet alley, curtain 40' single spot Stairwell coverage	30' x 30' room Wall, corner or ceiling Pet alley, curtain 40' single spot Stairwell coverage	
Model 6255FM **SureShot™ Flush Mount**	Pre-wired wall or ceiling Retro flush mount	Pre-wired wall or ceiling Retro flush mount	
Model 6155 **Sharpshooter™**	45' x 45' room Wall or corner mounted Pet alley, curtain 90' long range Extra wide angle	45' x 45' room Wall or corner mounted Curtain 90' long range Extra wide angle Single gang plate w/swivel	
Model 6155CT **Sharpshooter™ CT**	Cold climates: garages and vacation homes	Cold climates Unheated property	Cold climates Unheated warehouses
Model 6085 **Sharpshooter™ Wire Cage**	Garages	Vandal protection Gymnasiums	Vandal protection
Model 6155XT **Sharpshooter™ XT** (captures within 1˚C contrast) (uses Quad technology)	Warm climates Unstable environments	Warm climates Unstable environments	Warm climates
Model 6165 **Wireless Sharpshooter™** (back box for transmitter available)	Compatible with most wireless systems Same applications as 6155	Compatible with most wireless systems Same applications as 6155	
Model 6187CTX **Industrial Sharpshooter™** (operates to –40˚C) (cast metal housing)		Outdoors to control CCTV or local alarm Warehouses Locker rooms Underground parking lots Dusty, cold or wet areas	Outdoors to control CCTV or local alarm Food processing plants Underground parking lots Dusty environments Cold or wet areas
Model 6197 **Intrinsically Safe PIR**		Hazardous areas with ignitable atmospheres Government sites Pharmaceutical labs Oil refineries Grain elevators	Hazardous areas for use in Class I, II, & III Division 1-2 Groups A, B, C, D, E, F and G
Model 6198 **Nonincendive PIR**			Hazardous areas; for use in Class I Division 2 Groups A, B, C, and D (only)

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CHOOSING THE APPROPRIATE PIR

The following chart is intended to help you match the appropriate Aritech PIR with your particular application.

ARITECH PIR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
Model AP125/AP126 **(Form A)/(Form C)** **Mirror Optic Wall Mount**	33' x 40' room Corner or wall mounted 5 curtains at 33ft. each Range can be reduced to 20ft. Mounting height 6'-10'	33' x 40' room Corner or wall mounted 5 curtains at 33ft. each Range can be reduced to 20ft. Mounting height 6'-10'	
Model AP425/426 **(Form A)/(Form C)** **Mirror Optic Wall Mount**	50' x 65' room Corner or wall mounted 7 curtains at 50ft. each Mirror mask allows coverage patterns Mounting height 6'-10'	50' x 65' room Corner or wall mounted 7 curtains at 50ft. each Mirror mask allows coverage patterns Mounting height 6'-10'	
Model PR361/PR363 **(Form A)/(Form C)** **Ceiling Mount**	50' diameter-360° coverage Ceiling mount - low profile 9 curtains at 25ft. each Mounting height 7'-12'	50' diameter-360° coverage Ceiling mount - low profile 9 curtains at 25 ft. each Mounting height 7'-12'	
Model PR569 (Form C) **Commercial Ceiling Mount**		60' diameter-360° coverage Ceiling Mount Ind./Comm. 12 curtains at 30 ft. each Mounting height 7'-15' Coverage patterns: - Full 360° - 90° Curtain - "L" Turn Pattern - Corridor Intersection	60' diameter-360°coverage Ceiling Mount Ind./Comm. 12 curtains at 30ft. each Mounting height 7'-15' Coverage patterns: - Full 360° - 90° Curtain - "L" Turn Pattern - Corridor Intersection
Model PR633/643 **200 ft Long Range** **80 ft Wide Angle**		200' Long Range 80' Wide Angle Wall Mount 12 selectable coverage patterns Mounting height 6'-10'	200' Long Range 80' Wide Angle Wall Mount 12 selectable coverage patterns Mounting height 6'-10'

SPECIFICATIONS

	6150 Series	6150XT Series	6160 Series	6170 Series
Electrical				
Voltage				
3 Volt & 9 Volt Wireless			✔	
7 to 16 VDC	✔	✔		
7 to 10 VDC			✔	
9 to 16 VDC				
9.5 to 30 VAC/DC				✔
Current				
20uA typical			✔	
8mA typical, 10mA max	✔	✔		6177
18mA typical, 20mA max				6179
50mA max				
Alarm Loop Rating				
16 VDC, 50mA	✔	✔	N/A	6177
30 VAC/DC, 1A; 125 VDC 50mA				6179
Alarm Output				
Fail Safe contacts with 10 Ohms in series				
Form A, normally closed (SPST)	6155, 6155CT, 6155AL	6155XT		
Form C, normally closed and open (SPDT)	6157, 6157CT, 6157AL	6157XT		6177
Form C, no resistance in series				6179
Normally high and normally low			✔	
Alarm Duration				
2 to 5 seconds	✔	✔		6177
2 to 5 seconds in walktest mode 5 to 9 seconds in RF mode			✔	
0 to 90 seconds retriggerable, adjustable				6179
Cover Tamper Contacts				
Normally closed, rating: 50mA, 16-volts, no resistance	✔	✔	✔	✔
Normally closed, rating 50mA, 16-volts, 10 Ohms in series				
Environmental				
Operating Temperature				
0°F to 122°F (-17°C to 50°C)	6155, 6155AL 6157, 6157AL	✔	✔	✔
-40°F to 122°F (-40°C to 50°C)	6155CT, 6157CT			
Humidity				
Dust Proof, Water Resistant				
10% to 90% noncondensing	✔	✔	✔	✔
RFI Immunity				
Greater than 10V meter from 0 to 1000 MHz	✔	✔	✔	✔
Lightning Immunity				
2.5KV, 2 joules max energy impulse, 1 msec rise/50 msec decay	✔	✔		✔
Static Discharge 20KV	✔	✔	✔	✔

SPECIFICATIONS

	6180 Series	6190 Series	6250 Series	6255FM Series	6350 Series
Electrical					
Voltage					
3 Volt & 9 Volt Wireless					
7 to 16 VDC	✔	6198	✔	✔	✔
7 to 10 VDC					
9 to 16 VDC		6197			
9.5 to 30 VAC/DC					
Current					
20uA typical					
8mA typical, 10mA max	✔	6198	✔	✔	✔
18mA typical, 20mA max					
50mA max		6197			
Alarm Loop Rating					
16 VDC, 50mA	✔	✔	✔	✔	✔
30 VAC/DC, 1A; 125 VDC 50mA					
Alarm Output					
Fail Safe contacts with 10 Ohms in series					
Form A, normally closed (SPST)		6198	6255	6255FM	6351, 6352
Form C, normally closed and open (SPDT)	✔	6197	6257	6257FM	6353
Form C, no resistance in series					
Normally high and normally low					
Alarm Duration					
2 to 5 seconds	✔	✔	✔	✔	✔
2 to 5 seconds in walktest mode					
5 to 9 seconds in RF mode					
0 to 90 seconds retriggerable, adjustable					
Cover Tamper Contacts					
Normally closed, rating: 50mA, 16-volts, no resistance	✔	6198	✔	✔	6352, 6353
Normally closed, rating 50mA, 16-volts, 10 Ohms in series		6197			
Environmental					
Operating Temperature					
0°F to 122°F (-17°C to 50°C)			6255, 6257	6255FM, 6257FM	✔
-40°F to 122°F (-40°C to 50°C)	✔	6198 6197-PIR only			
Humidity					
Dust Proof, Water Resistant	✔	✔			
10% to 90% noncondensing	✔	✔	✔	✔	✔
RFI Immunity					
Greater than 10V meter from 0 to 1000 MHz	✔	✔	✔	✔	✔
Lightning Immunity					
2.5KV, 2 joules max energy impulse, 1 msec rise/50 msec decay	✔	✔	✔	✔	✔
Static Discharge 20KV	✔	✔	✔	✔	✔

PIR INSTALLATION GUIDELINES

SPACE DETECTION

Passive Infrared (PIR) motion sensor technology provides one of the most reliable and cost effective methods for protecting spaces in the home, office or industrial facility. PIR detectors sense temperature contrasts between a relatively stable background and hotter or colder objects moving across their fields of view. They emit no energy of their own. They merely "see" infrared images.

Sentrol, the world leader in security and life safety sensor devices, offers a complete line of PIRs suitable for every application — residential, commercial, and industrial. Sentrol PIR detectors fit compactly, aesthetically and unobtrusively into any environment. This application section is designed to help you select the appropriate PIR for your particular needs.

IMPORTANT DOs AND DON'Ts FOR ALL INSTALLATIONS — residential, commercial or industrial.

- Do position the PIR so that any intruder must cross the PIR's field of view. To trigger an alarm, an intruder must cross both the positive and negative elements of one zone of the PIR's sensor.
- Do pre-test the PIR in the direction of likely intruder motion and walk-test monthly.
- Do locate the PIR so that valuables are well within its coverage pattern.
- Do terminate each protection zone on a solid object such as a wall or floor whenever possible. This provides maximum detection.
- Do mask zones around fireplaces because a smoldering log can change temperature quickly if it bursts into flames.
- Do use an industrial PIR in locations where a standard PIR may be affected by water, steam or oil.
- Don't aim PIR detectors at sources of rapid heating or cooling. These include forced air ducts, space heaters, direct sunlight, strong white lights and mirrors that can reflect strong lights.
- Don't obstruct the PIR's field of view.

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OTHER INSTALLATION TIPS

Pre-wiring — Pre-wiring allows you to work with the builder in the planning stage to determine optimum locations for sensors. It will also allow you to avoid many of the hazards inherent in post-construction installations i.e. drilling through the electrical cables, plumbing, and duct-work hidden in existing walls.

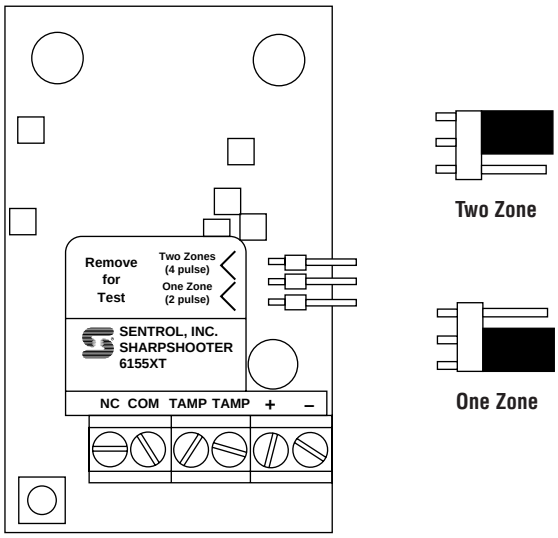
When wiring after construction, compromises are usually the norm — existing walls, lighting fixtures, air conditioning ducts, and other obstacles often determine sensor and control panel locations. Compromises such as these can leave "blind spots" in security installations.

Pre-wiring also allows you to run extra wires, a practice rarely seen in "post-wired" systems. Extra wires give the home or business owner the flexibility to easily add other features at a later date.

Pre-wiring allows you to avoid many of the hazards inherent in post-construction installations hazards such as water supply pipes, drain-waste-vent pipes, heating and cooling duct work, venting duct work for kitchens and bathrooms, and high voltage wiring.

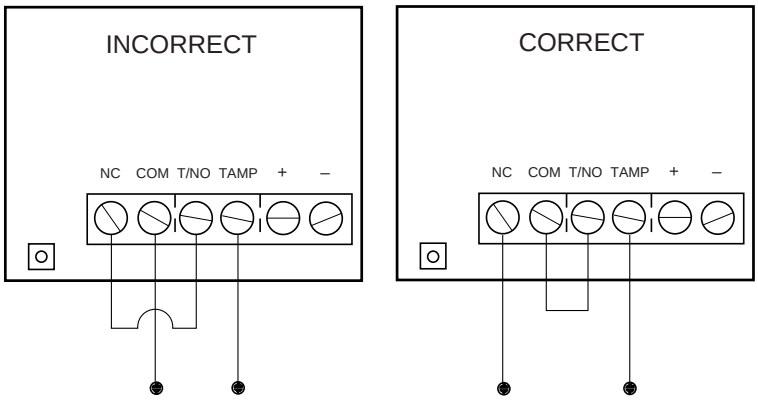
Sensors are now available that will fit into standard outlet boxes just like a light switch. Sentrol offers two products for prewiring applications. The Flush Mount SureShot PIR fits into a standard single gang box, remodel box or rough-in plate in two easy steps. You simply connect the wires to the proper terminals on the back of the unit, then screw the unit into an outlet box like you would a switch. The Sharpshooter also has a recessed bezel kit available as an accessory.

Reducing False Alarms — Sentrol PIRs allow selection of one- or two-zone detection. Each zone is made up of two fields of view — one positive and one negative. With one zone selected, an alarm will be indicated when an intruder moves across one positive and one negative field. With two zones selected, an intruder must cross the positive and negative fields of each of the two zones before an alarm will be indicated. Two-zone detection is recommended (except when using long range and curtain lenses) to reduce chances of false alarm. One- and two-zone detection is selected by simply moving the jumper as indicated in the diagram.



Wiring a Terminal Block With Shared Terminals — The SureShot and some older style Sharpshooter PIRs have SPDT (single pole double throw) contacts in which the "normally open" (N.O.) and one of the "tamper" (TAMP.) terminals are shared. In other words, one "TAMP". terminal is shared with "N.O."

When wiring a tamper switch in series with the alarm output in the normally closed configuration, care must be taken to wire the terminals as shown in the "correct" diagram below. If the jumper wire is placed from the "normally closed" (N.C.) terminal to "N.O.", as shown in the "incorrect" diagram, no alarm will sound.



When wiring tamper switch in series with the normally closed alarm loop, place the jumper between COM and T/NO.

Supervising the Loop — If a resistor is placed at the end of a protection zone (at the last unit in the line), that zone becomes a supervised loop. A small amount of current can always be applied to that loop, allowing it to "watch" the wiring at all times. The system can then be programmed to give a warning light or audible alarm if it is tampered with during daytime hours. "Supervising the Loop," therefore, is a security technique used to prevent internal tampering.

To supervise a loop in the normally open configuration, you simply remove the resistor from the terminal block in the control panel and place it across the N.O. and COM. terminals of the last security device on the line.

These Installation Tips apply to all environments — residential, commercial and industrial. The following sections provide specifics about commonly encountered applications in different environments.

PROTECTING MUSEUMS

APPLICATION

A PIR can effectively protect areas where the presence of valuable items increases the risk of theft or vandalism.

INSTALLATION

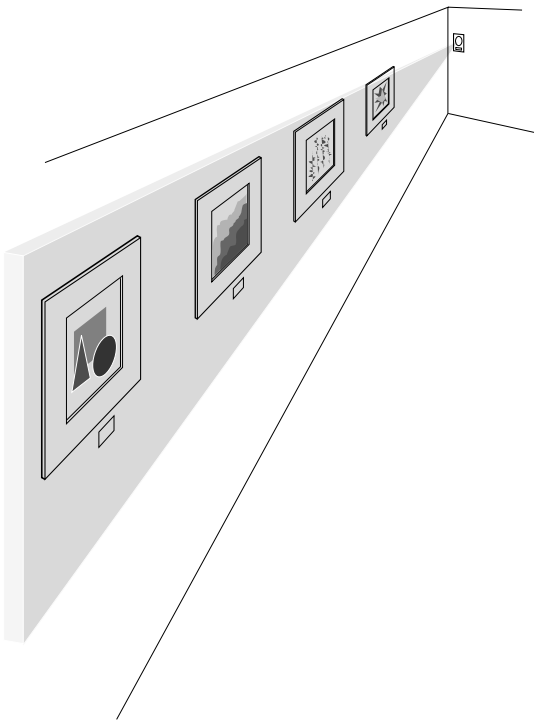
A PIR can be mounted to the side of a wall of paintings, for example, to trigger an alarm or recorded message to stay back (see Figure). A lens with a curtain pattern provides blanket coverage of areas of entry. A vertical barrier lens discourages intruders from attempting to crawl under the PIR's field of view.

A PIR can be mounted behind a painting or wall hanging to sound an alarm if the painting is removed.

Always test each sensor after installation to ensure correct operation.

RECOMMENDED PRODUCTS

The AP425 provides true curtain lens protection and is ideal for this application.



Creating a curtain of protection using the AP425

PROTECTING OFFICE FOYERS

APPLICATION

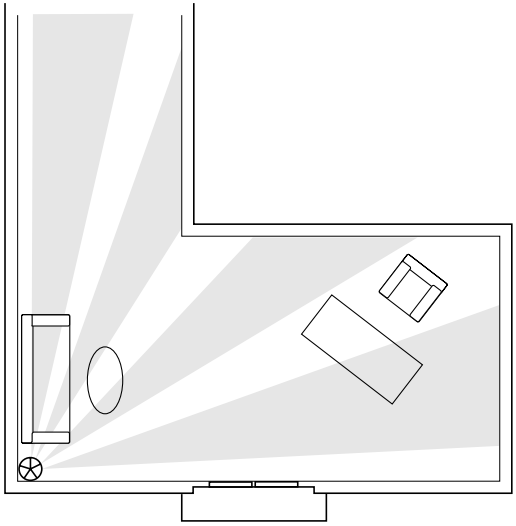
Large office foyers can be difficult to protect with a single PIR. For large office foyers where the range of a single PIR may not be sufficient, a ceiling mount PIR mounted in the corner or in the center of the room may be a better way to protect it.

INSTALLATION

The illustration shows how a ceiling mount PIR mounted in the corner provides appropriate coverage of foyers, corridors and hallways.

RECOMMENDED PRODUCTS

The PR569 and PR363 Aritech PIR's are excellent choices in this application.



Protecting both a foyer and a hallway with one ceiling PIR mounted in the corner.

PROTECTING SCHOOLS

APPLICATION

Protecting schools presents a particular challenge to security system installers. Rooms in schools are typically larger than in other commercial environments (auditoriums, lecture halls, gymnasiums), and hallways are longer. And a very important concern is defense against vandalism.

It may also be necessary to protect outdoor areas to prevent unwanted entry at certain times of the day or night.

INSTALLATION

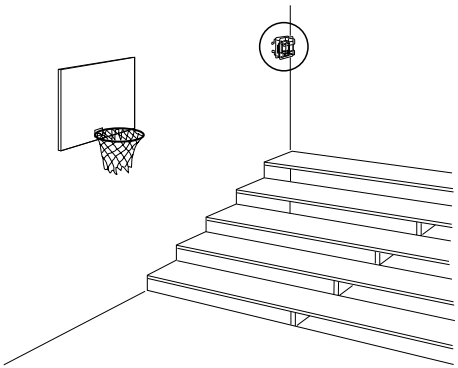
PIRs should be located high, near the corners of walls where they are least conspicuous. Rugged design is a plus.

Outdoor PIRs should be mounted high, out of reach of vandals, in areas where they will not be exposed to direct sunlight. For outdoor installation see COMMERCIAL AND INDUSTRIAL OUTDOOR AREAS section.

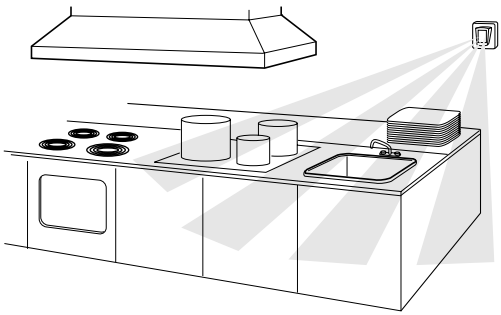
RECOMMENDED PRODUCTS

The 6155 Sharpshooter with 6085 Wire Cage, or the 6187CTX Industrial PIR offer the best protection against vandalism. The 6187CTX is ideal for areas that may be exposed to water, high humidity, heat or chemicals, as in school kitchens or shops. It incorporates a cast metal housing, allowing it to be used indoors or outdoors.

For larger areas and 200 ft hallway coverage use the PR633. It provides 80 ft wide angle, 40 ft curtain and 200 ft long range coverage patterns. (see page 42)



Using a wire cage (6085) to protect against vandalism or accidental damage.



The 6187CTX is sealed against water, dust and grime.

CONTROLLING PERIPHERALS

APPLICATION

PIRs can be use to control a wide range of peripheral devices such as entry and exit doors, CCTV cameras, recorded messages, etc.

INSTALLATION

A Sharpshooter may be used in the look-down mode (see Avoiding Sabotage Zones) to operate entry and exit doors (Figure 1). A special request-to-exit Sharpshooter (6179) is available for this application.

A SureShot may be used in a museum to trigger a recorded message to Stand Back. (See Protecting Museums)

The 6187CTX PIR can be used outdoors to turn on a CCTV camera, or a camera on a chip, when an intruder is detected (Figure 2).

RECOMMENDED PRODUCTS

Any Sentrol PIR can be used to control a peripheral device.

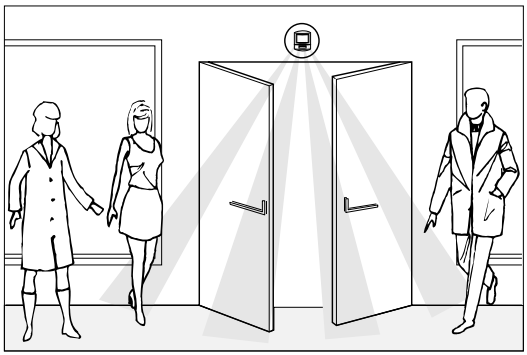


Figure 1—Using the 6179 in a request to exit application.

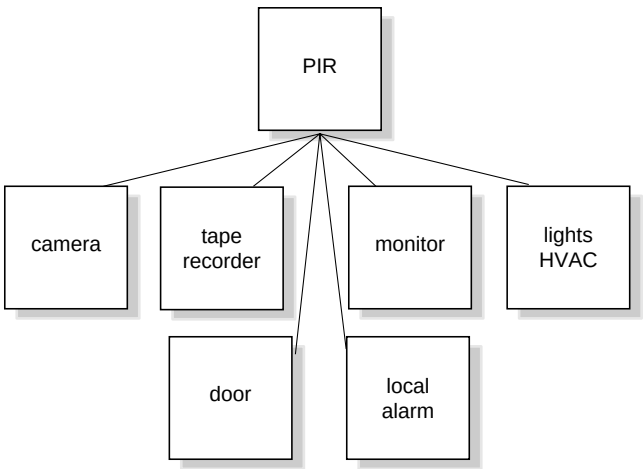


Figure 2—A PIR can be used to control many different devices.

USING A PIR FOR GROCERY STORE PICKUP

APPLICATION

Grocery stores are often designed with drive through grocery bag pickup lanes. A PIR with a long range lens mounted on the overhang above the drive-up can be used to signal the grocery bag attendant with a bell and/or a light when a car pulls up to the pickup door. The long range lens provides spot detection of automobiles and minimizes false alarms from people in the walkways next to the pickup lane. This configuration is designed for local annunciation — not alarm. **Note:** the PIR is responding to the heat of the car engine. Upon initial start-up, some car engines may not generate sufficient heat to trip the PIR. Be sure to localize the PIR by using a long range lens in this application.

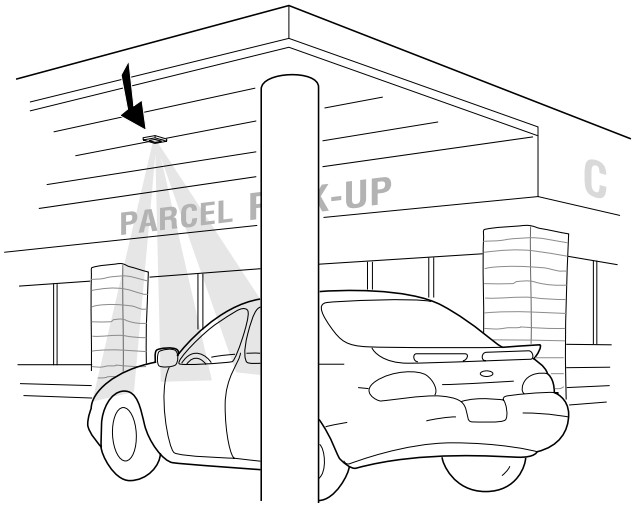
INSTALLATION

Mount the PIR in the ceiling, directly above the drive.

Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

RECOMMENDED PRODUCTS

The cast metal housing of the 6187CTX is specifically designed for outdoor applications. It provides water resistance and reliable detection in temperatures from -40°C to +50°C (-40°F to +120°F).



The 6187CTX detects warm car engines crossing a narrow field of view sending a local alarm to a waiting attendant.

PROTECTING LARGE AREAS

APPLICATION

Factories, supermarkets, sports or concert halls, gymnasiums and warehouses typically require protection of a very large area. This can require installation of several PIRs, with consequent material and labor costs.

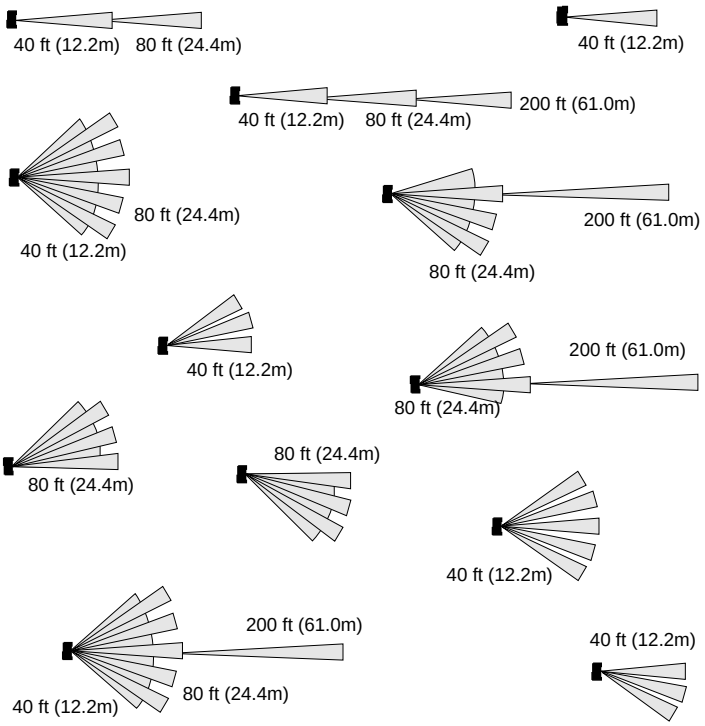
The PR633 can provide a significant savings in large area protection. With an 80 foot wide angle coverage pattern, a single PR633 can often do the job of several conventional PIRs. The coverage includes a complete 40 foot curtain and a 200 foot long range field of view which can be enabled when required. The combination of "step focus" mirror and microprocessor controlled "4D" signal processing ensures excellent detection at all ranges and trouble-free performance in these often difficult environments.

INSTALLATION

Mount the sensor between 6 and 10 feet high. Select the correct sensitivity for standard wide angle detection. Carry out any fine adjustment using the aiming mechanism as described in the manual.

RECOMMENDED PRODUCTS

Aritech PR633



Protect ballrooms, concert halls, warehouses, or factories with PR633.

LONG RANGE APPLICATIONS

APPLICATION

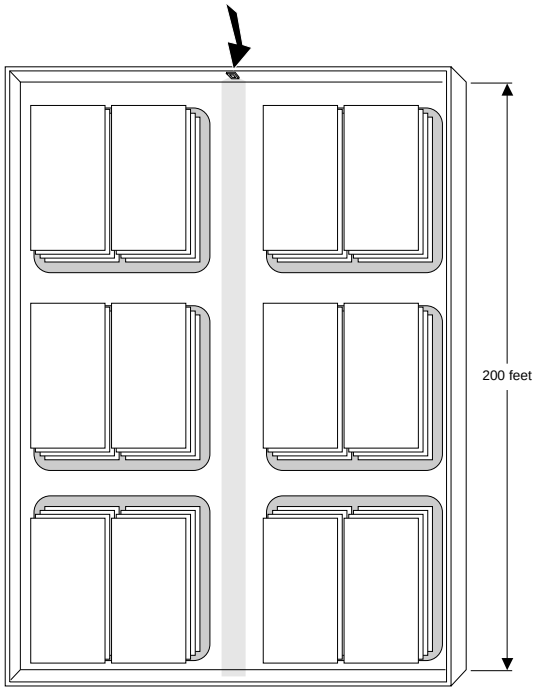
In supermarkets, factories and schools it is frequently necessary to protect long corridors or aisles. The PR633 provides the longest range of any PIR available (200 ft.) The unique step focus mirror ensures that even at maximum range, detection is crisp and consistent without any oversensitivity at closer ranges.

INSTALLATION

Mount the sensor between 6 and 10 feet high. Select the correct sensitivity for "Curtain /Long Range" detection. Carry out fine adjustment using the aiming screws as described in the manual. This is very important in this application: a minor horizontal or vertical re-orientation can result in a major displacement of the field of view at 200 feet. If detection is not satisfactory at long range, check the vertical orientation: an uneven wall can make the sensor aim slightly downwards, reducing range.

RECOMMENDED PRODUCTS

Aritech PR633



One PR633 Long Range Unit provides a full 200 foot coverage.

PROTECTING OFFICES WITH PARTITIONS, SHELVING OR OTHER OBSTACLES

APPLICATION

Partitions, half-walls, shelving, filing cabinets, etc. are typically encountered in the office environment. The best way to avoid these obstacles while protecting all the space in a room is to mount a PIR in the ceiling. Sentrol PIRs can also be installed in drop ceilings.

INSTALLATION

Position the PIR in a location where partitions will not block the PIR's coverage patterns (see Figure 1).

Correct placement is as shown in Figure 2.

Walk-test the installation to ensure correct operation.

Office personnel should be instructed not to move partitions or shelving without notifying the security consultant.

RECOMMENDED PRODUCTS

The 6255 Standard SureShot, 6255FM Flush-Mount SureShot, PR361 and PR569 Aritech PIRs are ideal for this application.

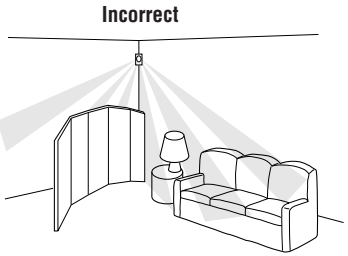


Figure 1. Wall mounted PIRs are more susceptible to blockage by partitions and shelving.

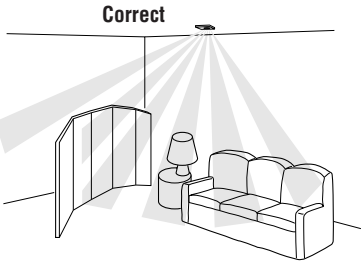


Figure 2. A ceiling mount PIR can provide protection from partitions blocking the view.

USING ACCESSORIES FOR INCREASED COVERAGE

APPLICATION

For uneven walls that may block coverage, or applications where the PIR needs to look around curtains or other obstacles, brackets can be used to position the PIR as needed.

INSTALLATION

Double brackets may be mounted with PIRs aimed in opposite directions to achieve 180° coverage as shown in Figure 1.

Figure 2 shows two such applications and their corresponding coverage patterns.

Figure 3 shows how you can extend a PIR away from a wall or ceiling so it looks around window coverings and down hallways.

RECOMMENDED PRODUCTS

The 6155 Sharpshooter with the 6069 mounting bracket, or the 6084 Ceiling/Wall Bracket with Swivel.

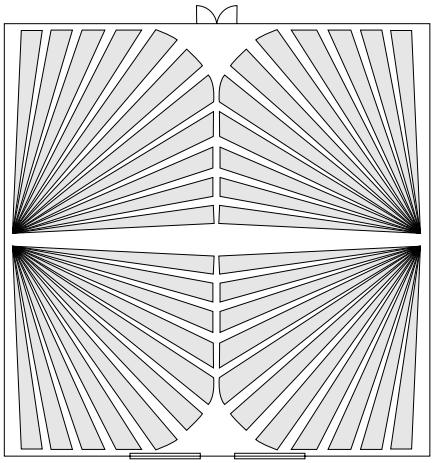


Figure 2.

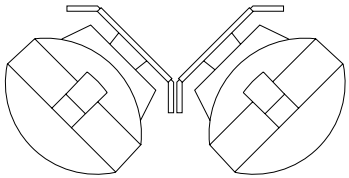


Figure 1. Using double brackets for 180° coverage with the 6155.

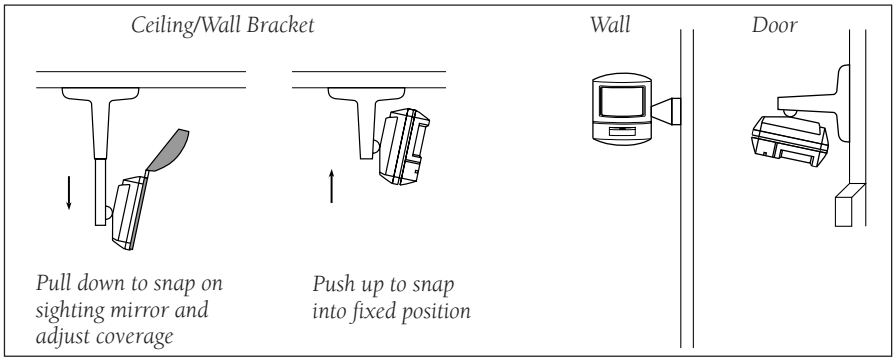

Ceiling/Wall Bracket
Wall
Door
Pull down to snap on sighting mirror and adjust coverage
Push up to snap into fixed position

Figure 3.

PERIMETER DETECTION

APPLICATION

PIRs can be sensitive to direct sunlight. This poses a problem when protecting a room with several windows. Windows can limit the choice of coverage patterns and mounting locations. However, using four Sharpshooters with or Aritech AP425 units allows you to protect the entire perimeter of such a room.

INSTALLATION

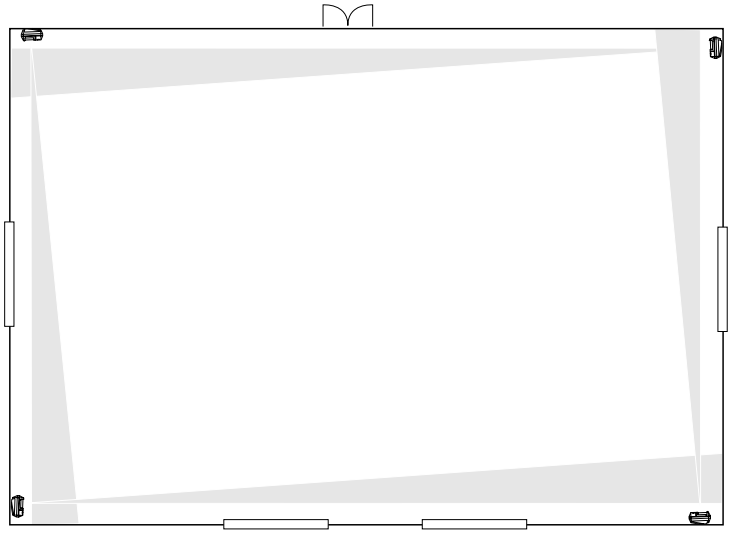
Mount the Sharpshooter swivel bracket near a corner as shown in Figure 1. Connect the back case to the bracket and snap in the sighting mirror. Viewing the coverage pattern through the mirror, angle the PIR slightly toward the center of the room. The outside coverage zone should run parallel to, but not touch, the wall to be protected. With proper aiming you can reduce the unprotected space near the wall. You may want to mask the look-down zones on the 6071 long range lens.

Using the AP425, insert the mirror mask over that portion of the mirror that "looks out" into the room.

Walk-test the installation to ensure correct operation.

RECOMMENDED PRODUCTS

The 6155 Sharpshooter equipped with the 6071 90' (27.4 m) long range or 6073 vertical barrier lenses is ideal. The AP425 has excellent curtain protection since half of its pattern is easily masked.



Setting up perimeter protection with the 6155 or AP425.

PROTECTING AGAINST ROOF OR SKYLIGHT ENTRY

APPLICATION

A PIR with a curtain pattern can effectively protect areas under skylights or where the presence of valuable items increase the danger of entry through the roof. The curtain lens will blanket the area where entry is most likely to occur.

INSTALLATION

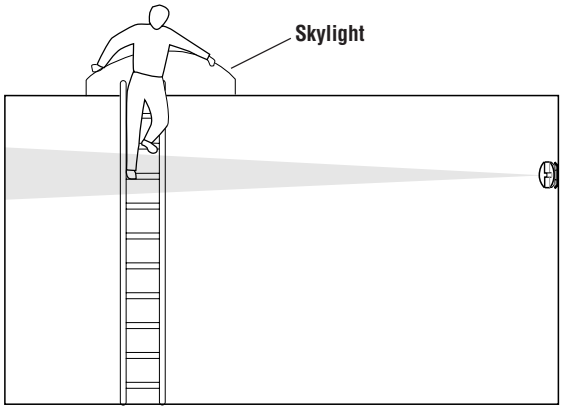
The 6155 Sharpshooter can be equipped with a curtain lens for this application. The mirror sighting system helps you achieve the best coverage. **Note:** Make certain the unit will not be subjected to early morning or late evening light entering through the windows and striking the detector directly.

For a curtain pattern, mount the swivel bracket 90° from vertical. Attach the back case of the sensor to the bracket and snap in the sighting mirror. After positioning for best coverage, tighten the bracket in place and recheck positioning with the mirror. Then snap on the front cover of the sensor with the curtain lens installed. Unit should appear rotated 90° from typical vertical position.

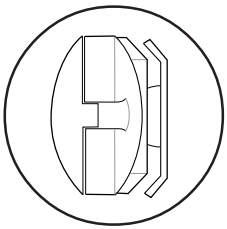
Pass your hand up and down in front of the Sharpshooter to trip the alarm and ensure correct operation.

RECOMMENDED PRODUCTS

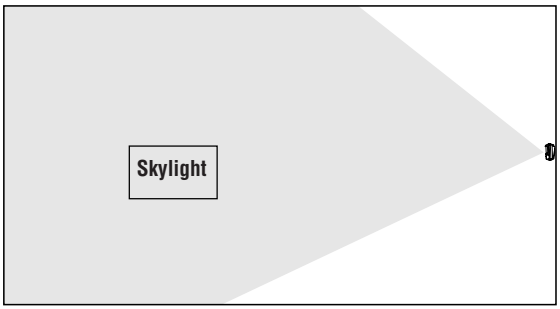
The 6155 Sharpshooter equipped with a 6073 curtain lens is ideal for this application.



Side View. 6155 is turned 90° from standard, vertical position with curtain lens.



Top View
6155 Sharpshooter



Top View of curtain lens.

PROTECTING OUTDOOR AREAS

APPLICATION

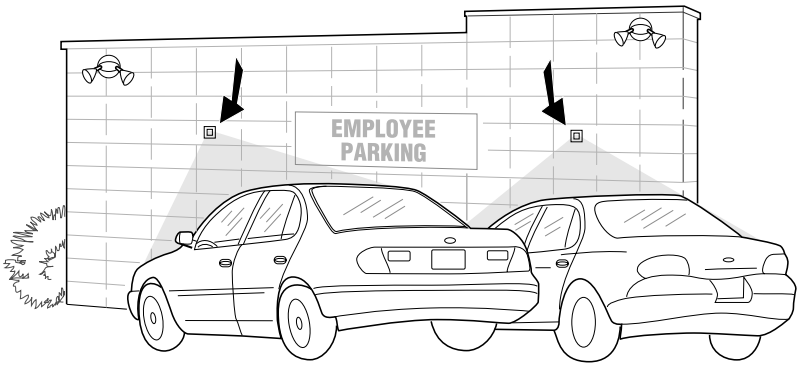
There are many applications for space protection outdoors. Most of them stem from the need to protect property that is at risk. Parking lots, outdoor shopping areas, outdoor shipping areas, outdoor garden shops, auto dealerships, aircraft hangers, perimeters of military installations, and public utility installations are examples of such applications.

INSTALLATION

Refer to "TIPS FOR INSTALLING THE 6187CTX OUTDOORS" from the sales sheet on page 54.

RECOMMENDED PRODUCTS

The Sentrol 6187CTX PIR is specifically designed for outdoor applications.



The 6187CTX comes in a cast aluminum gasket-sealed housing, protecting it against snow, rain, dirt, etc. It is rated to operate to -40°C.

ACTIVATING A CCTV CAMERA

APPLICATION

A PIR can be used to activate a CCTV camera that monitors outdoor parking lots, auto dealerships, shopping areas, shipping areas, garden shops, aircraft hangers, perimeters of military installations, and public utility installations.

In this application the PIR does not directly activate a central station alarm. Rather, it alerts a guard station and/or automatically starts a CCTV recording device. This prevents false alarms due to birds and other animals that might enter the detector's coverage area.

INSTALLATION

Connect a Sentrol 6187CTX PIR unit to local alarm switch in a central station or a CCTV camera.

Mount the PIR approximately 7 ft. (2.13m) high on a flat surface to discourage rodents or birds from perching.

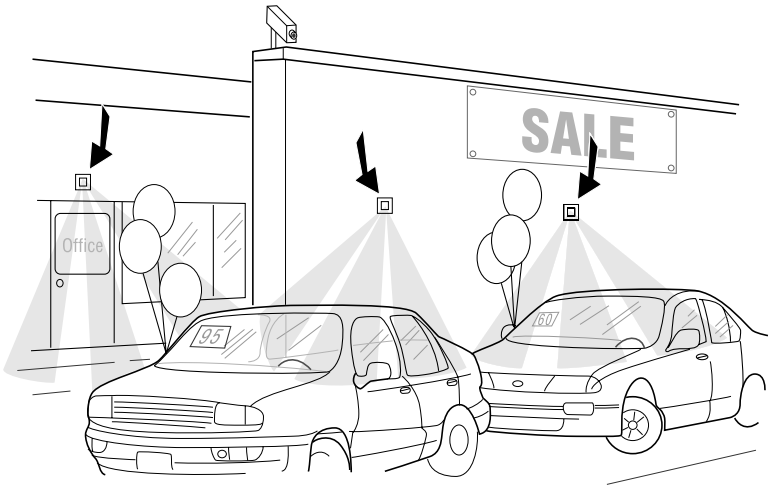
Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

Avoid direct sunlight on the plastic lens.

Keep away from branches that may impede PIR's coverage pattern.

RECOMMENDED PRODUCTS

Use the 6187CTX for outdoor applications.



The 6187CTX comes in a cast aluminum gasket-sealed housing, protecting it against snow, rain, dirt, etc. It is rated to operate to -40°C.

PROTECTING AGAINST ROOFTOP HVAC VENT ENTRY

APPLICATION

A PIR with a curtain pattern can effectively protect against rooftop HVAC vent entry. The curtain lens will blanket the area where entry is most likely to occur.

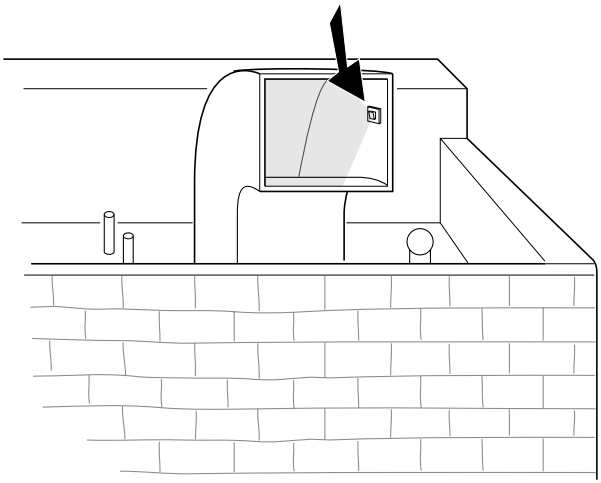
INSTALLATION

The 6187CTX can be equipped with a curtain or standard lens for this application. Attach back of case directly to one of the walls of the HVAC opening.

Pass your hand across the front of the detector to trip the alarm and ensure correct operation.

RECOMMENDED PRODUCTS

The 6187CTX equipped with a curtain lens.



The 6187CTX comes in a cast aluminum gasket-sealed housing, protecting it against snow, rain, dirt, etc. It is rated to operate to -40°C.

PROTECTING AGAINST ACCESS THROUGH SEWERS

APPLICATION

Some sewers are large enough to permit the passage of humans. A PIR can be used in a sewer to provide early detection of an intruder.

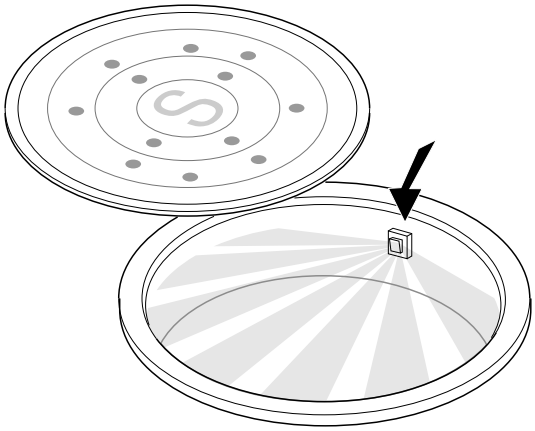
INSTALLATION

The 6187CTX should be equipped with a standard lens for this application.

Use swivel bracket, if necessary, for mounting the PIR so that its curtain pattern covers the sewer opening. After positioning for best coverage, tighten the bracket in place and test the sensor.

RECOMMENDED PRODUCTS

6187CTX; 6083-N Swivel Bracket.



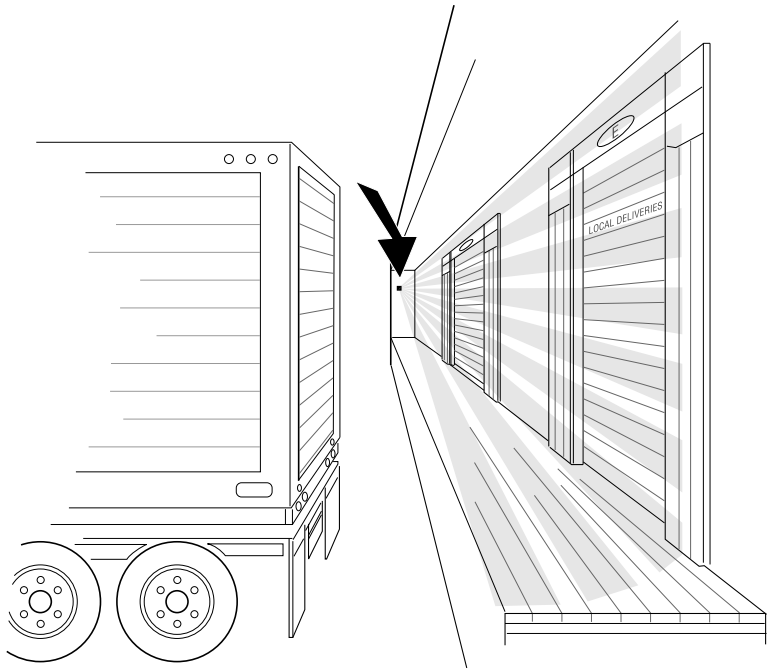
The 6187CTX comes in a cast aluminum gasket-sealed housing, protecting it against snow, rain, dirt, etc. It is rated to operate to -40°C.

PROTECTING INTERIOR OF LOADING DOCKS

APPLICATION Loading docks are a frequent target of burglars. Early detection can avoid costly break-ins to both the back of trucks and the warehouse itself. Sentrol's 6187CTX PIR is designed for outdoor use and can be directed to protect the targeted area with the 6083-N swivel bracket.

INSTALLATION Mount a 6187CTX on a 6083-N swivel bracket and direct the PIR toward the area to be protected. Order unit with vertical barrier lens. Walk test the installation to verify proper operation.

RECOMMENDED PRODUCTS 6187CTX; 6083-N Swivel Bracket.



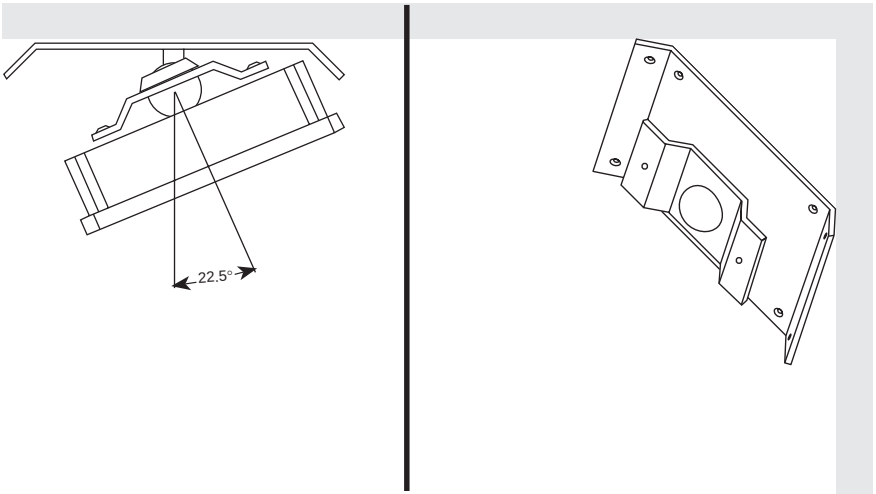
The 6187CTX can be equipped with a vertical barrier lens. It comes in a cast aluminum gasket-sealed housing, protecting it against "Mother Nature's" elements and is rated to -40°C.

USING A SWIVEL BRACKET FOR AREAS WHERE MOUNTING IS DIFFICULT

APPLICATION The 6083-N swivel bracket can be used with the 6187CTX Outdoor PIR, the 6198 non-incendive and the 6197 Intrinsically Safe PIR in areas where mounting is difficult.

INSTALLATION Remove back cover and use smaller self-tapping screws that ship with swivel bracket. Can be either flat wall or corner mounted.

RECOMMENDED PRODUCTS 6083-N Swivel Bracket.



Flat Wall
Top view
(max. adjusting angle 22.5°)

Corner

EXTREME CONDITIONS

APPLICATION Meat lockers, unregulated buildings in very hot or cold climates, and other areas of extreme temperature often require space protection.

INSTALLATION Refer to Protecting Vacation Homes and Garages in the Residential Applications for installation instructions.

RECOMMENDED PRODUCTS For industrial applications in very cold environments, Sentrol manufactures the 6187CTX PIR. It operates down to -40°C (-40°F). The 6155CT can also be used in cold climates, but is housed in standard plastic.

For very hot environments where the temperature differential between a person and the surrounding air is very small, Sentrol offers the Sharpshooter 6155XT, which can distinguish temperature differences as small as 1°C.

Sunlight—Avoid direct sunlight on the plastic lens (even with UV stable plastics).

Temperature—The 6187CTX PIR is rated to perform from -40°F (40°C) to +120°F (+50°C). Be aware of a temperature in excess of these specifications.

Humidity/Rain/Fog—Make sure the conduit openings are well sealed and the mounting holes are sealed.

Birds & Animals—Depending on the size, speed and proximity to the detector, warm blooded animals can trigger an alarm. The larger the animal, the further away it can be detected. Mount the PIR high-at least 7 ft. (2.13m)-on a flat surface that discourages rodents or birds from perching. Avoid directing the sensor towards bushes or branches where birds could perch. You may consider mounting two PIRs, one above the other, in parallel to require verification of alarm.

Weeds & Bushes—Tree branches or bushes can cause an alarm when the wind moves them, and weeds and bushes can block detection. Keep branches and bushes at least 30 feet (9.15m) from the PIR.
Install the PIR away from vines or vegetation that could block the view.
Testing your installation over a 24-hour period can help troubleshoot any false alarm sources. Take the time to know your environment. Up front planning is always less expensive than unwanted alarms later.

STORE FRONT APPLICATIONS

APPLICATION

A curtain PIR such as the AP425 often provides a cost-effective and secure means of detecting intrusion through large windows and doors such as are typically found in a store-front or car showroom.

INSTALLATION

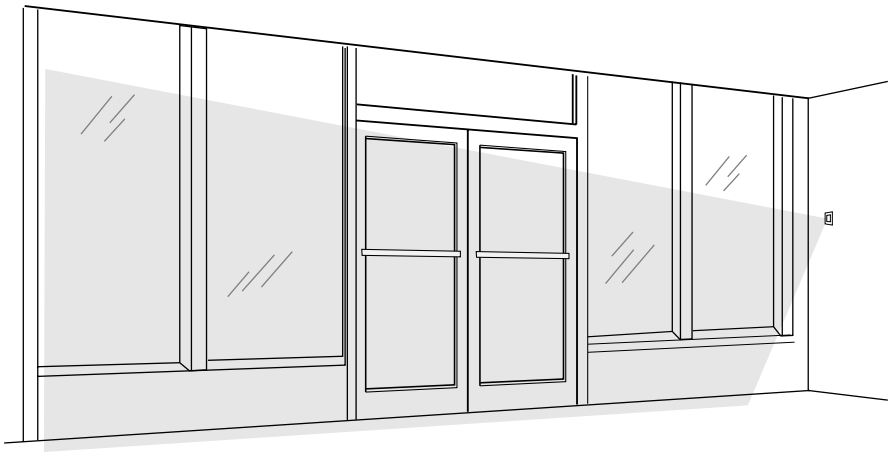
Mount the sensor 3 feet from the window. This avoids any possibility that one half of the curtain is "looking" at the window, while the other half is not, a potential cause of instability. If this is not possible, angle the sensor slightly inwards.

Install the appropriate mirror mask(s). In the drawing below, the left side of the pattern is masked out (always mask out curtains which are directed at the window), while the right side is left active to protect the inside of the store and provide convenient walk testing.

Make sure the sensor is programmed for standard sensitivity and that the appropriate range setting is programmed.

RECOMMENDED PRODUCTS

AP425



The AP425 can provide true curtain coverage for areas requiring vertical barrier detection, like store fronts.

REMOTE TEST APPLICATION

APPLICATION

Many organizations require daily or weekly operational testing of all PIRs. For large industrial or government installations, maintenance costs are increased when these tests must be performed manually. With Sentrol's remote test option your customers can reduce maintenance costs by testing each PIR remotely, from a central control panel.

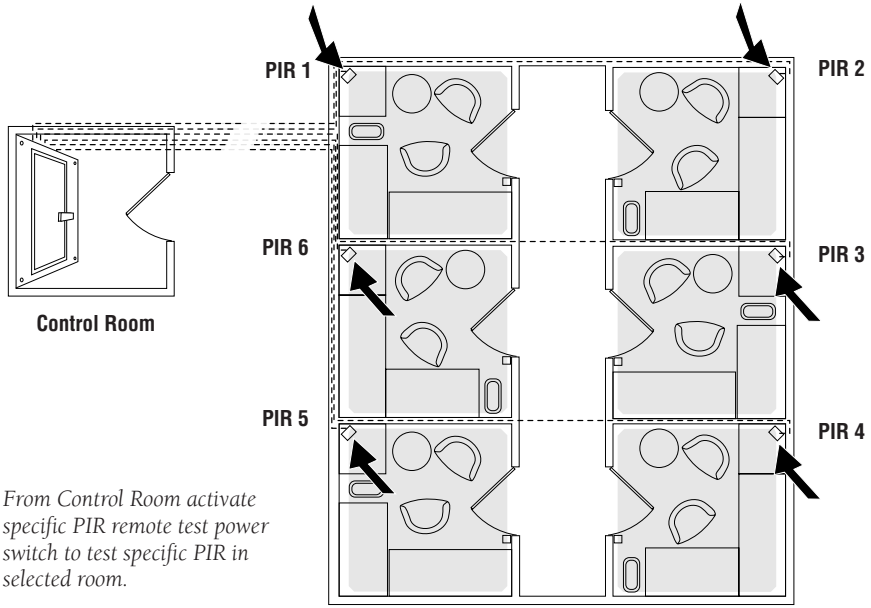
Sentrol's remote test option has been accepted for use by the Department of Defense, Defense Intelligence Agency, General Services Administration, and Department of Energy.

INSTALLATION

Select the application specific Sentrol 6000 Series Passive Infrared (PIR) unit with the remote test feature. Provide adequate number of wires for basic PIR power and alarm status operation. Provide an additional 2 wires (usually 22 AWG) for carrying 12 V to 18 VDC. Connect the remote test wires from your control panel to the PIR remote test loop. Activate the remote test switch at the control panel by following the remote test option circuit instructions provided with unit.

RECOMMENDED PRODUCTS

All Sentrol 6000 Series units (except 6197 & 6198).



From Control Room activate specific PIR remote test power switch to test specific PIR in selected room.

EXPLOSIVE ATMOSPHERES

APPLICATION

Areas such as munitions depots, grain storage areas, and chemical plants can often involve explosive atmospheres. It is imperative, therefore, that PIRs used in such areas contribute no electrical signal or field that could cause ignition.

INSTALLATION

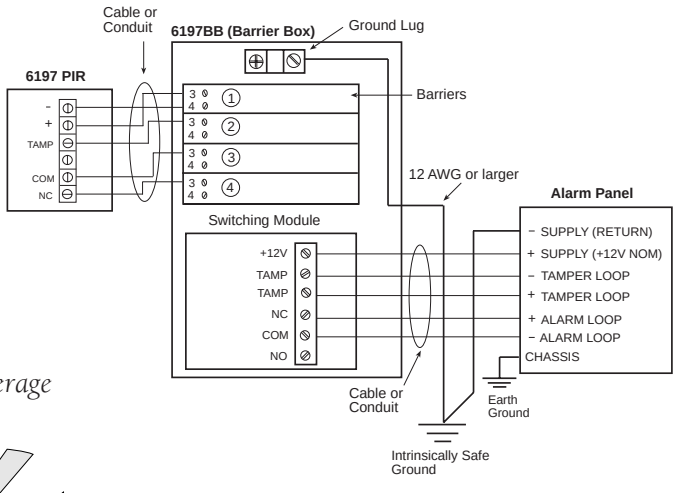
Mount the 6197 Intrinsically Safe PIR in the hazardous area using either a sealed cable or sealed conduit fitting. Replace the standard lens with either of the other two lenses if needed.

Mount the Barrier Box in the non-hazardous area next to the alarm panel. Run wire between the Barrier Box and the alarm panel terminals. Connect the ground lug on the bus bar inside the Barrier Box to an intrinsically safe ground using a 12 AWG wire or larger. Connect the chassis ground on the alarm panel to earth ground.

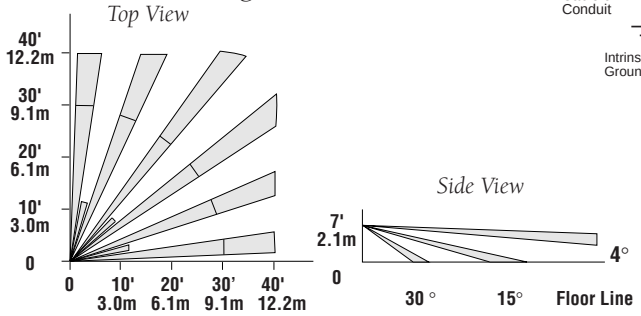
Remove the front housing and install the jumpers in the PIR in the walk test mode. Select either one or two zone mode. Replace the front housing with the rubber gasket using four screws. Walk test the PIR. Install the Barrier Box lid.

RECOMMENDED PRODUCTS

The Sentrol 6197 Intrinsically Safe PIR System is FM-approved and UL Listed for use in hazardous locations. For non-explosive applications that still require class I, Division 2, Groups A, B, C & D use the 6198 Non-incendive PIR.



Standard Lens Coverage



Additonal coverage patterns include vertical barrier and long range.

WHEN APPEARANCE IS PARAMOUNT

APPLICATION

When adding a security system to an existing residence, the appearance of the system is often paramount in the mind of the homeowner. The homeowner will be concerned with sensor placement, the location of wires, location of the control panel, and how holes are drilled through existing walls.

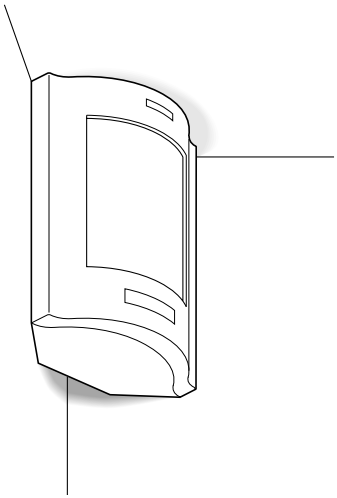
INSTALLATION

A unit that mounts close to the ceiling and in a corner is the least noticeable. It is also the most effective because it allows you to use a standard 90° lens, which gives you entire room coverage.

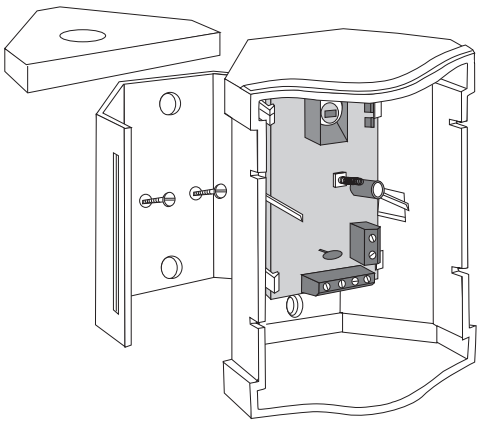
- Choose a corner that is adjacent to the room's entrance to get the best line of sight for the sensor. This is also the least obtrusive location.
- Using the 6351 Sharpshooter DL, you will be able to mount as close to the ceiling as possible, making the unit even less noticeable. Pulling wires through the ceiling can be much easier and quicker than pulling them through walls.
- Using the foam spacer, mount the bracket to the wall and connect the wires to the unit's terminal block (see illustration). Then snap the cover in place.
- Most rooms need only one-zone sensitivity. If the room is subject to temperature fluctuations or other instability, adjust the unit for two-zone sensitivity.
- The DL incorporates an adjustable circuit board that allows you to mount flush to ceiling from 7' to 11' high.
- Walk-test the unit to ensure correct operation.

RECOMMENDED PRODUCTS

The DL 6351 DesignLine PIR combines an attractive, unobtrusive design with an easy-to-mount snap-on bracket. It can be mounted in a corner within 1/8" (3 mm) of the ceiling which makes it easier to install, saving you time and money.



The 6351 DesignLine fits within 1/8" of the ceiling from 7 to11 feet high.



Using the corner tool and bracket saves installation time.

FLUSH-MOUNTING A PIR

APPLICATION

Flush-mounting a PIR makes the sensor no more intrusive in a room than an electrical outlet or switch. Flush mount PIRs are most often used in pre-wired security installations, but can also be used in retro-fit installations.

INSTALLATION

The 6255FM Flush mount PIR fits into a standard, plastic single-gang electrical box. If the security system is to be pre-wired, mount a single-gang box for each sensor as planned with the builder. Sensor wires can then be easily run through walls and routed to the control panel. Do not run the PIR wires along side AC wires due to noise problems.

Choose a wall that is adjacent to the room's entrance to get the best line of sight for the sensor. Or, when using the 6255FM, mount the box in the ceiling.

Run wires through the box to the sensor's terminal block. Most rooms need only one-zone sensitivity. If the room is subject to temperature fluctuations or other instability, use the 6155 and adjust the unit for two-zone sensitivity.

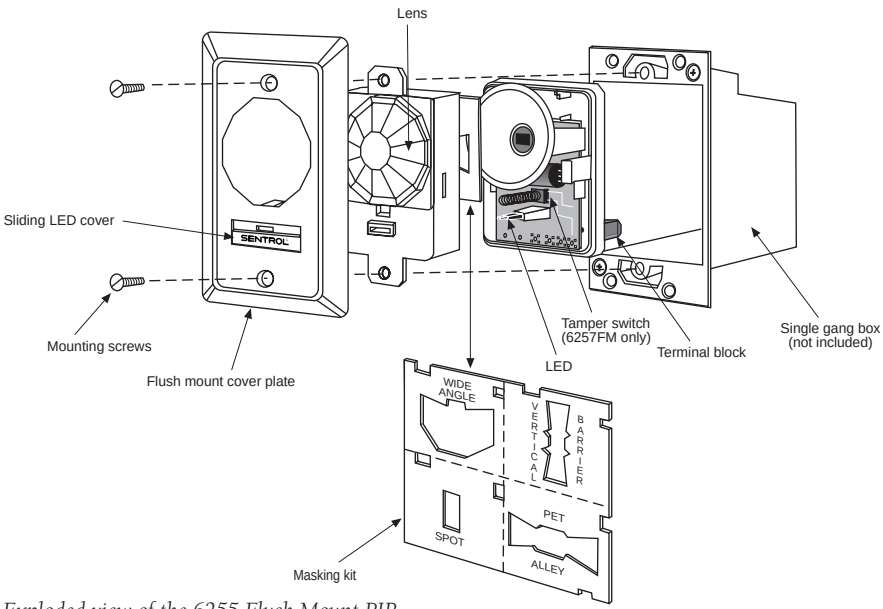
Screw the entire unit into the single-gang box as you would an electrical outlet.

For retro-fit installations, take care to cut a hole in the wall just large enough to fit a single-gang remodel box. Or, in the case of the 6155, cut the hole just large enough for the PIR to fit. *If the hole is too large, the flush mount PIR's cover plate will not cover it completely.*

Walk-test the unit to ensure correct operation.

RECOMMENDED PRODUCTS

The 6255FM Flush Mount SureShot, and the 6155 Sharpshooter with the 6082 Flush Mount Kit, can be mounted in the wall or ceiling.



Exploded view of the 6255 Flush Mount PIR

PROTECTING MULTILEVEL HOMES

APPLICATION

In today's homes with multi-level flooring, care must be taken to ensure complete coverage. The most cost-effective way to obtain complete coverage is to use a PIR with a 360° lens wall- or ceiling-mounted. A standard, wall-mounted 90° lens may leave creep zones that an intruder can use to invade a home.

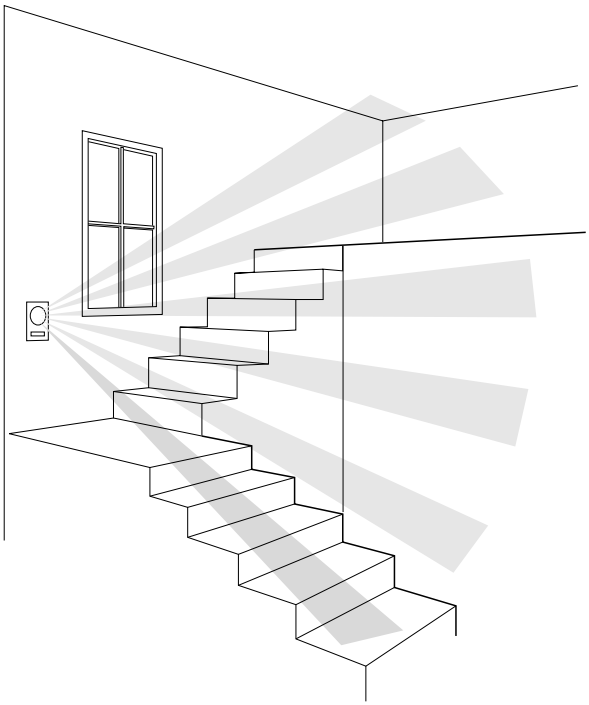
INSTALLATION

Choose a wall that is adjacent to the room's entrance to get the best line of sight for the sensor. Or, mount the sensor in the ceiling to achieve 360° coverage of the room.

Walk-test the unit to ensure correct operation. Verify that there are no creep zones.

RECOMMENDED PRODUCTS

The 6255 SureShot, or the 6255FM Flush Mount SureShot, can be wall or ceiling mounted.



The 6255FM in a stairwell application.

CREATING A PET ALLEY

APPLICATION

Because PIRs are sensitive to moving, heat-radiating sources, they can be triggered by animals as well as humans. To avoid this false alarm hazard, the coverage pattern of the PIR must be aimed so it does not extend to areas where pets can move around in the home when the system is on.

INSTALLATION

A PIR with a pet alley lens must be mounted at a specific height on the wall to avoid areas where a pet may climb or jump. The Sharpshooter Installation Mirror is especially useful in setting up a pet alley quickly, without the hassle of time-consuming measurements. Mounting the unit against the wall at the desired height, center the reflection of your eye in the bulls-eye at the bottom of the mirror and look for tables, chairs and other objects on which a pet could jump.

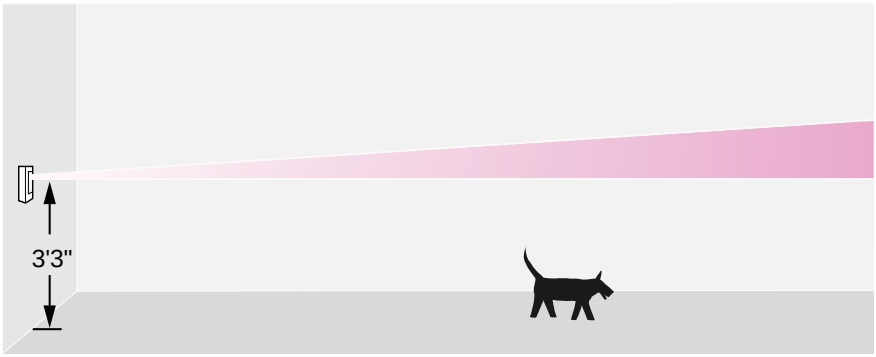
Adjust the unit or move the object so those areas are avoided. Remember that the size of the pet should also be considered during your aiming and re-adjustment. If necessary, mask off high traffic areas for pets (such as cat climbing posts) with the masking kit included with each Sentrol PIR.

Remind the homeowner that furniture moved into the coverage pattern of the PIR can give a pet a place to climb or jump — resulting in false alarms.

Walk-test the unit to ensure correct operation.

RECOMMENDED PRODUCTS

The 6255 SureShot, 6255FM Flush Mount SureShot, 6351 DesignLine, or 6155 Sharpshooter can all be used to create pet alleys. Use the 6074 pet alley lens and the 6060 mirror sighting system with the 6155 Sharpshooter.



The 6255FM is very popular in this pet alley application since it sits flush to the wall, providing an unobtrusive, attractive alternative.

MOUNTING A PIR IN THE CEILING

APPLICATION

Mounting a PIR in the ceiling is an excellent way to hide wiring in single-level homes. Running wires in an attic for ceiling mounted sensors allows you to easily avoid water supply pipes, drain-waste-vent pipes, heating and cooling duct work, venting duct work for kitchens and bathrooms, and high voltage wiring. It is also useful for providing complete coverage of rooms with obstructions such as half-walls and shelving that can block coverage.

INSTALLATION

The Sentrol SureShot PIR and low profile Aritech PR361 provides 360° coverage when mounted in the ceiling. For flush mount installation, install a standard plastic single-gang outlet box. A remodel box can be used for homes where construction is already complete.

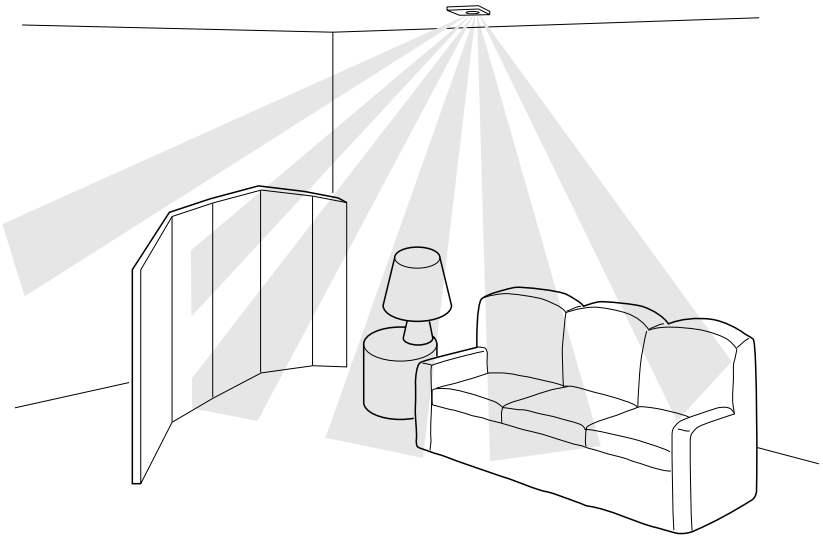
Connect the wires to the terminal block of the sensor and screw the sensor and cover plate into the box as you would an electrical outlet.

For ceiling mounting, drill a hole through the ceiling in the desired location and pull the wire through. Punch out the wiring knockout in the back cover and pull the wire through the hole. Attach the back cover to the ceiling using appropriate mounting knockouts. Snap the circuit board and front cover into the back cover.

Walk-test the unit to ensure correct operation.

RECOMMENDED PRODUCTS

The 6255 SureShot, the 6255FM Flush Mount SureShot, and the PR361 can be ceiling mounted.



Ceiling mount PIRs like the 6255 and PR361 help to eliminate obstacles in a room.

PROTECTING VACATION HOMES AND GARAGES

APPLICATION

Garages and vacation homes often contain valuable objects that can be protected with a PIR. Such spaces present a unique challenge because they are not temperature-regulated on a regular basis. In garages, there can also be a greater risk of damage from accidental impacts with balls, tools, lumber, etc. Garages and vacation homes can also contain rodents.

The Sentrol line of space protection devices includes PIRs that operate in a very wide range of temperatures. The 6155CT Sharpshooter, for example, operates from -40°C to +50°C (-40°F to +120°F). It is ideal for use in extremely cold climates. The 6155XT Sharpshooter offers 1°C discrimination capabilities, making it ideal for very warm climates where the temperature difference between the background and the intruder may be very small. Quad element pyros improve a PIR's ability to differentiate rodents from intruders.

An optional wire cage can be fit over either the 6155CT or XT to prevent accidental breakage and vandalism.

INSTALLATION

For best installation, use the Sharpshooter's mirror sighting system (model 6060). The mirror gives you a true picture of potential false alarm sources and helps you achieve the best mounting location for maximum detection. The Sharpshooter s swivel bracket allows easy aiming and adjusting.

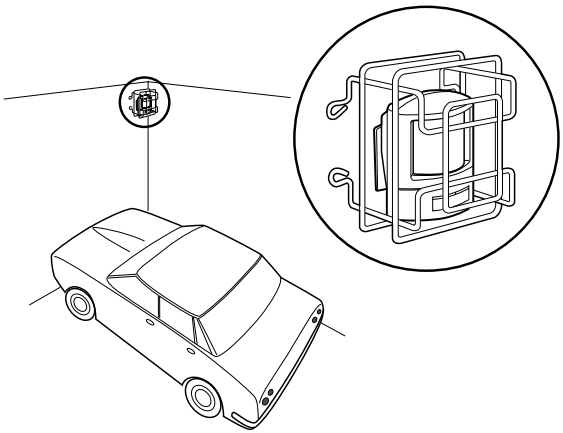
Attach the back case to the swivel bracket. Adjust the mounting angle by loosening the screw on the ball joint shoe and positioning the case. When desired coverage is achieved, tighten the ball joint shoe screw. Snap on the front cover with the desired lens installed. Attach the protective wire cage.

Position the sensor so that it will not be subject to early morning or late evening light entering through windows. Also, do not aim the sensor at mirrors that may direct such light onto the detector. The mirror sighting system will help you achieve the best coverage.

Walk-test the unit to ensure correct operation.

RECOMMENDED PRODUCTS

The 6155CT and XT Sharpshooters are the best PIRs for this application.



The 6155CT provides protection in areas where the temperatures are below freezing. The (6085) wire cage is a useful accessory in garages, warehouses or gymnasiums.

PROTECTING AREAS WITH WIRELESS SENSORS

APPLICATION

Wireless PIRs can be used in residential and commercial applications. Wireless units are especially useful for installations where it is difficult or impossible to run wires.

The Sentrol 616503 and 616509 Wireless Sharpshooter PIRs are compatible with virtually all wireless transmitters.

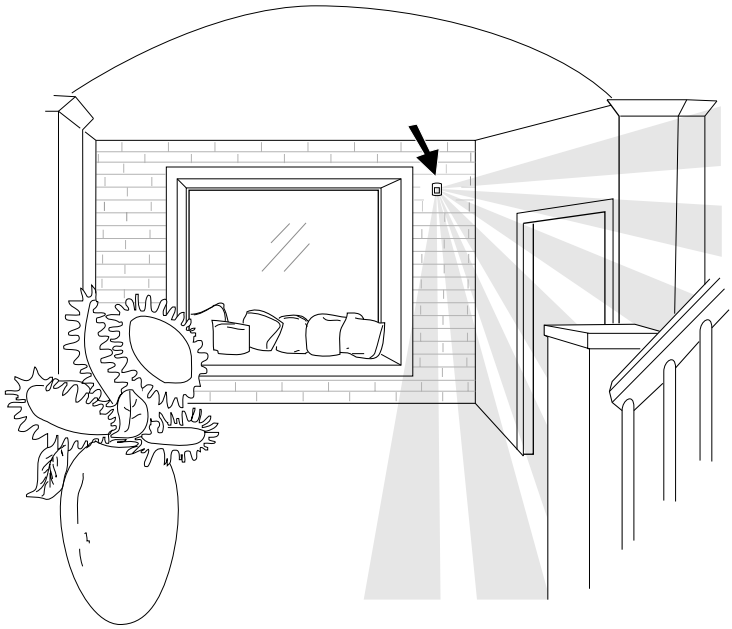
INSTALLATION

Wherever possible use a single PIR to cover more than one room. Mount the wireless back box and then insert the transmitter for the sensor. Attach the PIR to the swivel bracket that is incorporated into the front cover of the back box. Use the sighting mirror to locate the coverage pattern that corresponds with the lens you will use.

Walk-test the installation to ensure correct operation.

RECOMMENDED PRODUCTS

616503 3-Volt Wireless Sharpshooter PIR;
616509 9-Volt Wireless Sharpshooter PIR



PROTECTING A VEGETABLE GARDEN

APPLICATION

A PIR can be used to sound a local alarm when animals enter a vegetable garden.

The 6187CTX Outdoor PIR is excellent for this application. It can be equipped with a curtain lens and mounted on all four sides of a garden to provide complete perimeter detection. The PIRs are NOT, however, substitutes for a good fence.

INSTALLATION

Mount one PIR at each corner of the garden area approximately 7 ft. (2.13m) high.

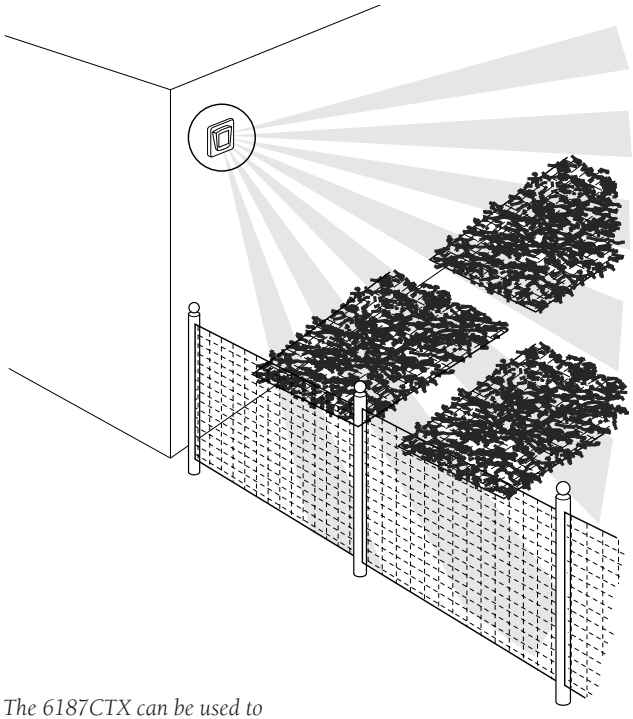
Avoid direct sunlight on the plastic lens.

Keep away from branches that may impede PIR's coverage pattern.

Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

RECOMMENDED PRODUCTS

The cast metal housing of the 6187CTX is specifically designed for outdoor applications. It provides water resistance and reliable detection in temperatures from -40°C to +50°C (-40°F to +120°F).



The 6187CTX can be used to protect outdoor commercial areas.

PROTECTING OUTDOOR SPACES

APPLICATION

There are many applications for motion detection outdoors. Most of them stem from the need to protect property that is at risk. There are also occasions to set up a pre-entry barrier to detect unwanted intruders — whether human or animal.

Sentrol has developed a rugged passive infrared detector that is excellent for outdoor use. The 6187CTX Outdoor PIR combines an advanced signal processing circuit, custom pyro and lens with a cast metal housing that is water resistant, dust and shock proof. It is rated to perform in temperatures from -40°C to +50°C (-40°F to +120°F).

Carefully consider if central station monitoring if necessary. A local alarm or local response such as CCTV may be appropriate if the potential for false alarms is high.

INSTALLATION

Mount the PIR high — at least 7' (2.13m) — on a flat surface to discourage rodents or birds from perching.

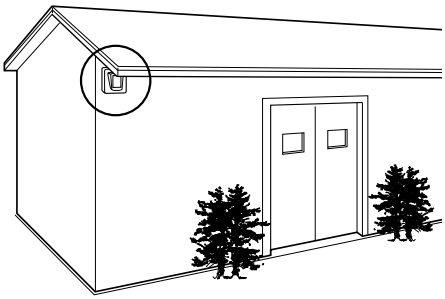
Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

Avoid direct sunlight on the plastic lens.

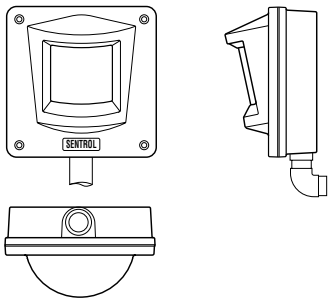
Keep away from branches that may impede PIR's coverage pattern.

RECOMMENDED PRODUCTS

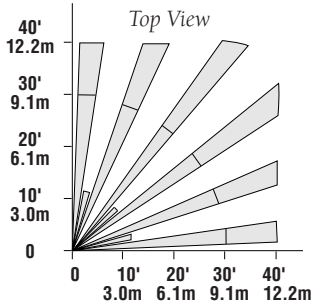
Use the 6187CTX for outdoor applications.

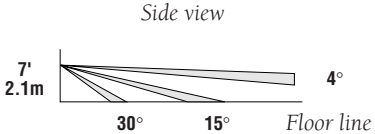


The Industrial 6187CTX can be installed outdoors as well as indoors and is rated down to -40°F.



The 6187CTX is fully sealed from water, dust and dirt.





SPACE DETECTION

USING A PIR TO PROTECT HALLWAYS OR ACTIVAGE HALLWAY AND LOBBY LIGHTING

APPLICATION

A PIR with a single-spot or vertical barrier coverage pattern can be used to protect long narrow areas such as corridors or hallways.

A PIR can also be used to activate lighting controls in hallways and lobbies.

Such applications are particularly useful when it is not possible to mount light switches near entrance doors.

INSTALLATION

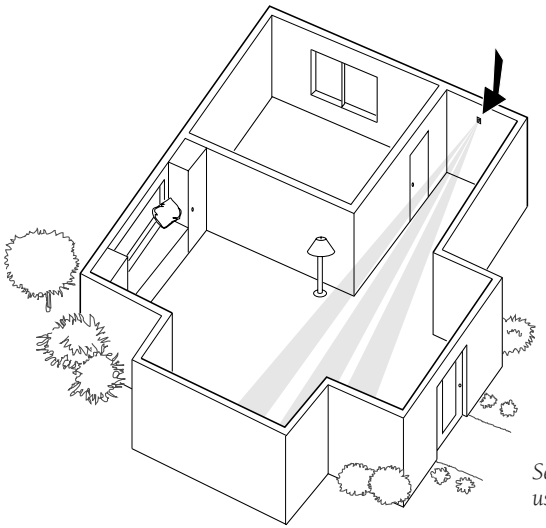
A single-spot or vertical barrier PIR should be mounted at the opposite end of a hallway or lobby from its entrance. Anyone entering the hallway from the entrance or from side doors will be detected.

A separate relay with power supply must be used to control lights.

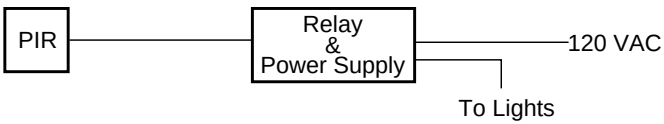
Walk-test the installation to ensure correct operation.

RECOMMENDED PRODUCTS

The AP125, AP425 and 6255 SureShot with a single spot or vertical barrier mask, the 6155 Sharpshooter with a long range (6071) or curtain (6073) lens, and the 6351 DesignLine with a vertical barrier mask will all work in this application. Things to consider when selecting a PIR are: length of the hallway, range of the PIR, appearance of the PIR, and pets.



Several Sentrol/Aritech products can be used to obtain coverage pattern desired.



When activating lights use a separate relay and power supply.

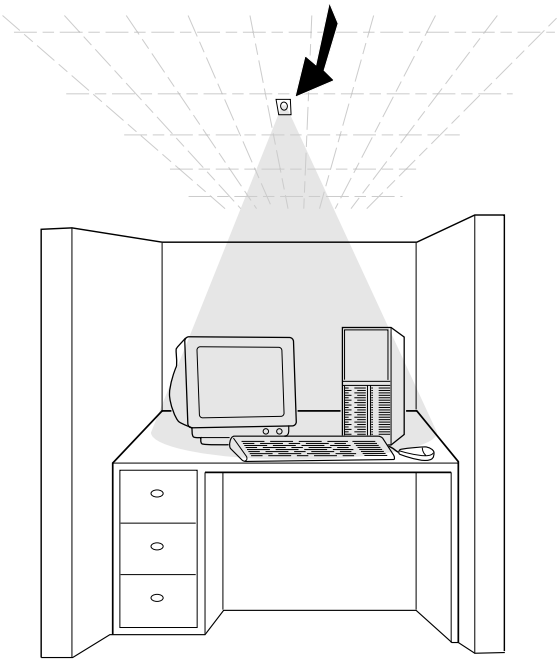
PROTECTING VALUABLE EQUIPMENT

APPLICATION A PIR with a single spot mask can be mounted in the ceiling above valuable equipment such as computers, TVs, video equipment, etc.

INSTALLATION A single-spot PIR should be mounted in the ceiling, directly above the equipment to be protected.

Walk-test through the PIRs field of view to test for proper operation.

RECOMMENDED PRODUCTS The 6255 SureShot and 6255FM SureShot with a single spot mask or AP425 curtain PIR. Verify that range of PIR is suitable for application.



Often times a very narrow coverage pattern is needed to protect expensive equipment. Use 6255/6255FM for ceiling mount or AP425 for wall mount.

PROTECTING INDOOR SWIMMING POOLS

APPLICATION

A PIR can be used to sound a local alarm upon unauthorized entrance into indoor swimming areas either at home or in a hotel after hours.

INSTALLATION

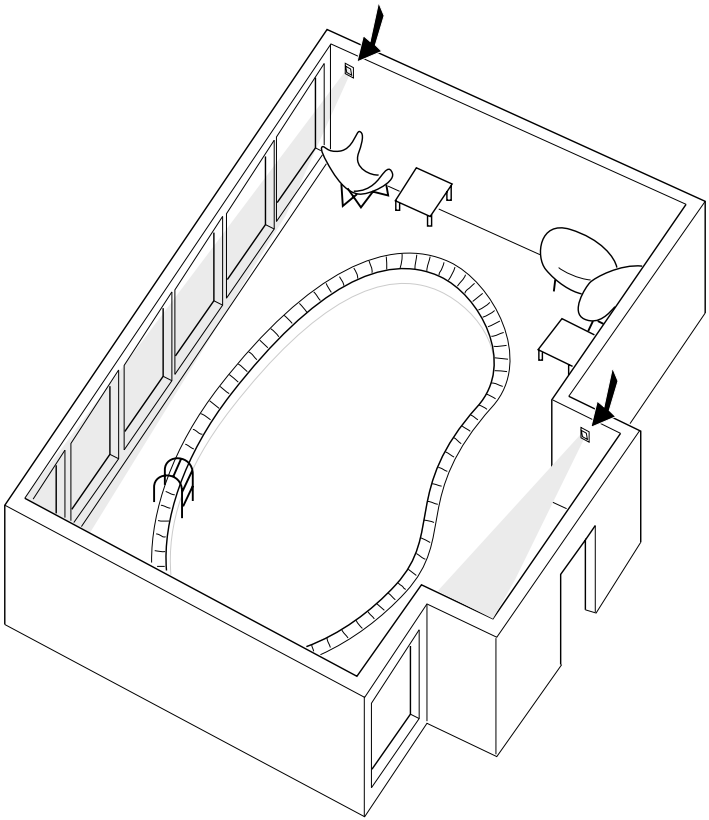
Mount the PIR on the wall above the entrance door, pointing downward; or in the ceiling pointing toward the door.

Mount the PIR approximately 7 ft. (2.13m) high.

Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

RECOMMENDED PRODUCTS

The cast metal housing of the 6187CTX provides water resistance in humid indoor swimming environments.



The 6187CTX comes in a cast aluminum gasket-sealed housing to keep out moisture and resist corrosion.

PROTECTING OUTDOOR SWIMMING POOLS

APPLICATION

A PIR can be used to sound a local alarm upon unauthorized entrance into outdoor swimming areas. A local alarm can notify a parent when young children enter a restricted pool area.

The 6187CTX Outdoor PIR is excellent for this application. It can be equipped with a curtain lens and mounted on all four sides of a swimming pool to provide complete perimeter detection.

NOTE: The PIRs in this application DO NOT take the place of a fence. All outdoor swimming pools should be surrounded by a fence for liability reasons.

INSTALLATION

Mount one PIR at each corner of the pool area approximately 7 ft. (2.13m) high.

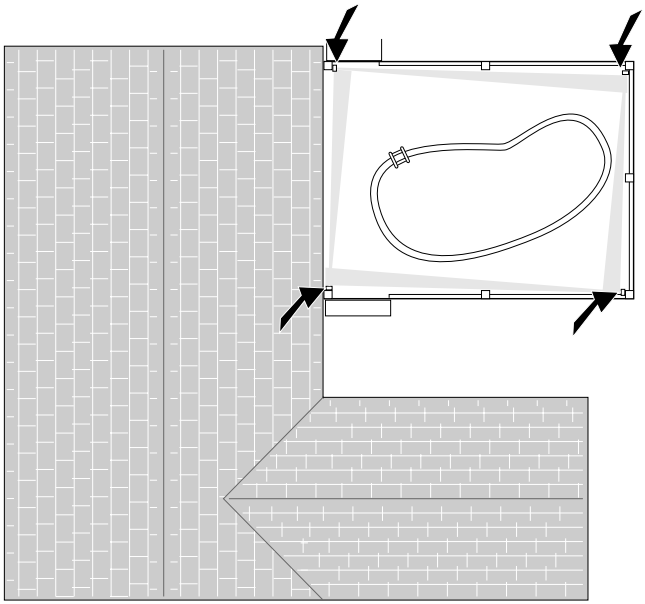
Avoid direct sunlight on the plastic lens.

Keep away from branches that may impede PIR's coverage pattern.

Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

RECOMMENDED PRODUCTS

The cast metal housing of the 6187CTX is specifically designed for outdoor applications. It provides water resistance and reliable detection in temperatures from -40°C to +50°C (-40°F to +120°F).



The 6187CTX comes in a cast aluminum housing that is gasket sealed to resist corrosion and is rated to -40°C.

USING A PIR TO ACTIVATE OUTDOOR LIGHTING

APPLICATION

A PIR can be used to activate lighting controls around homes, detached garages, gardens, back yard patios and decks, outdoor parking lots, auto dealerships, shopping areas, shipping areas, garden shops, aircraft hangers, perimeters of military installations, and public utility installations.

INSTALLATION

Mount the PIR approximately 7 ft. (2.13m) high on a flat surface to discourage rodents or birds from perching.

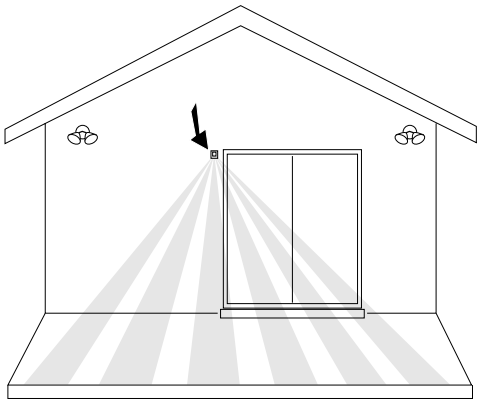
Make sure conduit openings and mounting holes are well sealed. If conduit is used, run the conduit out the side or bottom of the unit to keep condensation from the conduit from draining into the PIR's housing.

Avoid direct sunlight on the plastic lens.

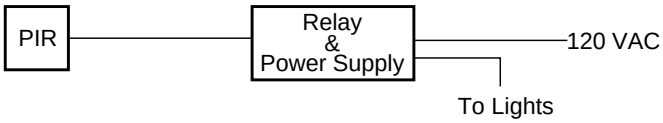
Keep away from branches that may impede PIR's coverage pattern.

RECOMMENDED PRODUCTS

6187CTX Outdoor PIR



The 6187CTX comes in a cast aluminum gasket-sealed housing that is water resistant and operates to -40°C.



When activating lights use a separate relay and power supply.

MAGNETIC CONTACTS

Sentrol has earned its leadership position in the manufacture of magnetic contact sensors by pioneering advances such as the use of multiple reeds, "wide gapping" and numerous features that reduce false alarms. We have developed a range of innovative designs to assure both greater sensitivity and complete reliability, even in the most demanding environments. With over 400 models to chose from, we offer the most comprehensive line of magnetic contacts and peripherals available.

Built for durability and dependability, Sentrol magnetic contacts are conservatively rated at 10,000,000 cycles, ensuring long life. Every reed connection is hand soldered and the reeds in many models are environmentally sealed. Our magnetic contacts are tested before they leave the factory — 100% of the time.

Our world class manufacturing standards and attention to detail virtually eliminate all out-of-box failures. You can install Sentrol magnetic contacts quickly and with every confidence in their reliability.

Many residential and commercial applications for magnetic contacts are similar. Residential users, however, will typically be more concerned with appearance than commercial users. Commercial considerations include specific issues such as how to protect valuables in storefront windows or display cases, how to protect steel doors and windows, and how to protect trucks at loading docks. Magnetic contacts are particularly suited for use on a 24-hour loop to protect occupied areas.

Phone: 800.894.0412 - Fax: 888.723.4773 - Web: www.clrwtr.com - Email: info@clrwtr.com

GENERAL SPECIFICATIONS

Operating Specifications

Switch Configurations:

- **Closed Loop** Switch closed when magnet is in close proximity
- **Open Loop** Switch open when magnet is in close proximity
- **S.P.D.T.** Switch has common, open and closed sides
- **D.P.D.T.** Two switches, each having common, open and closed sides

Gap Distances

Ratings are nominal and may vary ± 20%. Ratings are distance for switch to "make." Break distance is approximately 1.1 to 1.5 times the "make" distance.

Electrical Specifications

Rating	Closed Loop	Open Loop	SPDT	DPDT
Switching Voltage (Max.)	100V	30V	30V	30V
Switching Current (Max.)	0.5 Amp	0.25 Amp	0.25 Amp	0.25 Amp
Watts (Max.)(Volts x Amps)	7.5 Watts	3 Watts	3 Watts	3 Watts

Warning: Each electrical rating is an individual maximum and cannot be exceeded!

Example: Application at 100 VAC – 0.25 Amp would be 25 Watts and would exceed the rating of the switch.

Environmental Specifications

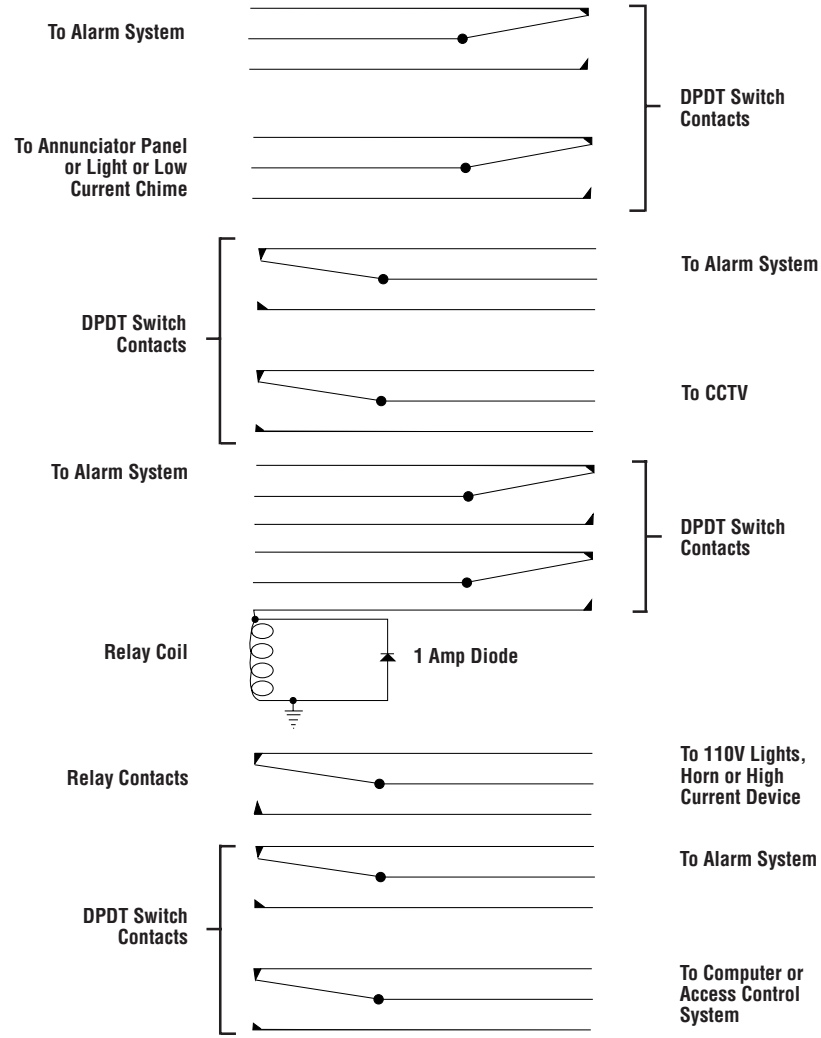
Temperature Range ..... -40°F to 150°F
Shock ..... 50 G's @ 11 milliseconds
Impact ..... Withstands drop of 2" (5 cm) dia. steel ball from 30" (76.2 cm)
Vibration ..... 35 G's @ 50-2000 Hz
Internal Atmosphere ..... Dry Nitrogen

CONTROL SWITCHING

Control Switching Using DPDT Switches

This information describes how to achieve dual switching with one magnetic contact and one magnet. DPDT magnetic contacts such as the Sentrol 1087D, 1084D, 2507AD, or 2707AD (see catalog) may be used in place of two contacts or one contact and a floor mat for an annunciator panel. Other applications include access control multiplex systems, computer monitoring of doors, lighting control and safety systems. DPDT switches are available in recessed, steel door, surface and industrial outdoor models.

Note: Each switch is electrically and mechanically isolated from the other and may switch at a slightly different point.



MOUNTING

Mounting Positions for Recessed Switches

Application:
Sentrol recessed contacts can be installed in a variety of positions to accommodate any application. As shown in Figure 1, the switch and magnet can be mounted end-to-end within an imaginary arc around the switch, or parallel to the switch. If using a wide gap switch with a bare magnet, the red end must be mounted **away** from the switch (wide gap switches are sensitive to the polarity of the magnet).

Gap distance will vary approximately 20% from the rated gap distance of the switch, depending on the type of switch and the mounting position. It will be necessary for the installer to experiment to determine if a given switch will work in a given position.

Note: Switch and magnet must not be mounted in a "T" configuration as shown in Figure 2. In cases where a surface magnet must be used with a recessed switch, use a surface mount switch from the 1082 switch series. Mount the magnet as shown in Figure 3.

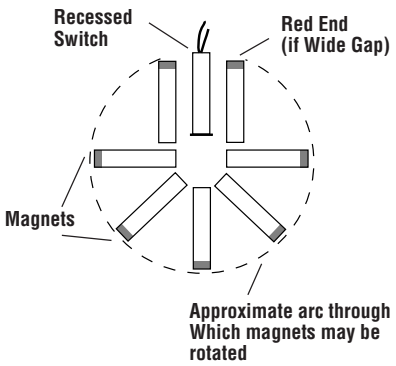


Figure 1. Acceptable Magnet Mounting Positions

Pro-Tips For Reliable Installation of Magnetic Contacts

1. When installing concealed switches in green lumber... to prevent switch damage as the lumber dries, twists, and contracts.
   - **a.** Over-drill (loose fit) the mounting hole. Use RTV (Sentrol 1905) to hold the unit in place.
   - **b.** As alternate, use adapter such as Sentrol 1908 model.
   - **c.** Use Sentrol model 1275 or 1275W Wing Fit™ model.
2. To protect loose-fitting doors from false alarms...
   - **a.** Mount the switch and magnet near the hinge side of the door.
   - **b.** Use a Sentrol wide gap unit to assure trouble-free performance.
3. To protect steel doors...
   - **a.** Use wide gap switches for maximum tolerance.
   - **b.** Use recessed switches that provide adequate insulation from steel (such) as Sentrol 1078 or 1078C).

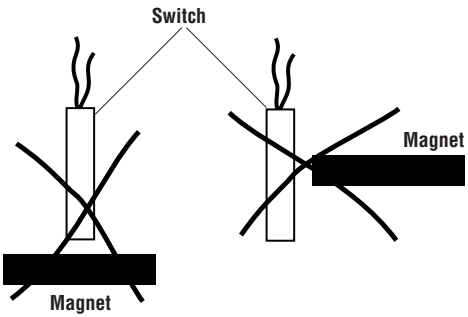


Figure 2. Incorrect Mounting Positions

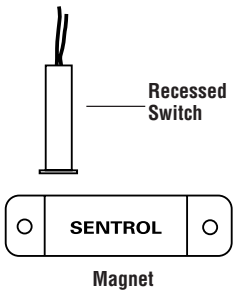


Figure 3. Recessed Switch with Surface Mount Magnet

MOUNTING

Mounting Data for Steel Doors and Windows

The results of test runs in which Sentrol magnetic contacts were used on steel are given here.

Test Procedure

Each sample was selected at random from finished goods inventory. Tests on each contact were run to measure pull in (make), and drop out (break) distances prior to mounting on the 6" wide, 16" long, and 1/2" thick steel plate.

Each contact pull in (make) gap distance was measured:

1. With contact and magnet attached directly to the 1/2" steel plate with no spacers.
2. With a single, .125" spacer under both the contact and magnet. A 1/2" spacer was used under both the magnet and contact in the 2505 test.

All measurements were recorded to the nearest 0.05" (fifty-thousandths of an inch).

Test Results

All dimensions in inches.

Contacts mounted on 1/2″ thick steel plate 6″ X 16″			**Control tests in air**	
Sentrol Switch Number	A Make Distance w/o spacer	B Make Distance with spacer under magnet & contact	Make Distance Pull in	Break Distance Drop out
1085T	.4	.55	.8	1.0
1085-W	.75	.95	1.5	2.1
1082T	.55	.7	1.25	1.5
1084T	.4	.6	1.0	1.2
1084T-W	.9	1.2	2.3	2.55
2505	1.2	2.2	4.2	

Conclusion

The Sentrol surface-mounted contacts should be satisfactory for applications in such areas as steel fire doors, safes, file cabinets, truck doors, and roll-up garage doors. Customers should be reminded to allow plenty of safety factor in installation. Sentrol recommends installing the contact and magnet with no more separation than about 50% of the pull in distance. For instance, on the Sentrol 1084TW measurements on steel, a maximum separation of 0.5" to 0.6" should provide a reliable system.

Rules of Thumb

- Gap on steel is approximately half the distance achieved in air.
- Space switch and magnet at approximately 25% of rated gap in air for safety factor.
- Use a spacer whenever it is practical. If only one spacer is used, mount it under the magnet.
- Applications on steel do not “drain” the magnet, but they do reduce the magnetic field.

PROTECTING AGAINST VOLTAGE SPIKES

The Sticking Reed Switch Problem

When magnetic reed switches are wired in line with relay devices with coils, the reverse voltage spike generated when current is removed from the relay can fuse the switch contacts together.

Figure 1 shows that when the contact is closed, current flows through the relay coil and magnetizes the iron core. When the contact is opened, current from the power supply stops and the magnetism of the relay iron drops to zero instantly. The collapsing magnetic field draws voltage into the relay coil. Since the coil is open (open reed switch) and there is no circuit loading to limit the voltage, spikes from the open relay can reach 500 volts or more, causing arcing across the reed contacts. (Most of Sentrol's reeds arc between 150 and 200 volts, well within this reverse voltage kick.)

Repeated arcing roughens and pits the reed switch blades until they eventually stick together mechanically. Installers often find that tapping on the switch will cause the contacts to release (open). The "fix" is only temporary, however.

Correcting the Problem for DC Circuits

Voltage kicks or transients from DC circuits are easily controlled by adding a diode across the relay coil, as in Figure 2. The diode has no affect on the circuit when the current flows in the right direction. However, when current from the power supply stops suddenly and the relay coil generates a reverse voltage, it shorts through the diode. Note that the stripe on the diode points toward the + voltage. The diode used should be a #1N4002, 1N4003, 1N4004 or equivalent.

... and for AC Circuits

In AC circuits, current flows through the relay coil in both directions. Using a diode would simply short out half of every cycle. However, a transient protection diode, called a TransZorb®, can be used to clip off voltage spikes in either direction as shown in Figure 2. TransZorb must be selected to fit the voltage used in the circuit. To find the correct TransZorb voltage rating, multiply the circuit voltage times 1.414. For example, in a 24 volt circuit a TransZorb rated at 34 volts or more may be used (24 x 1.414 = 34).

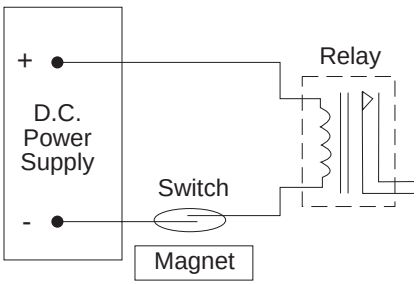


Figure 1

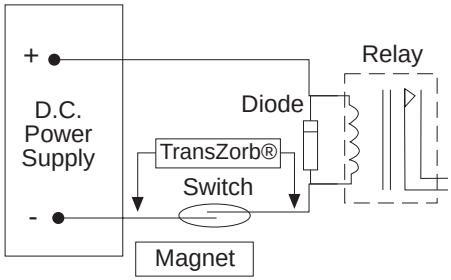


Figure 2

CONCEALING SURFACE WIRING WITH NICE-DUC®

Low-Profile, Unobtrusive Design

Nice-Duc is the ideal self-adhesive wiring duct for concealing low voltage alarm systems in completed structures. Nice-Duc blends unobtrusively into any environment with a choice of decorator colors.

For easy installation, Nice-Duc features a hinged design on one side and a slot tract on the other that snaps shut with the wire inside. The thin wall design is easy to cut to fit. Alcohol cleaning pads are included to remove dirt from installation surfaces.

Nice-Duc uses an epoxy-based adhesive tape with low initial tack so it can be easily adjusted. After 24-hours, the adhesive begins to cure, providing a permanent adhesive bond.

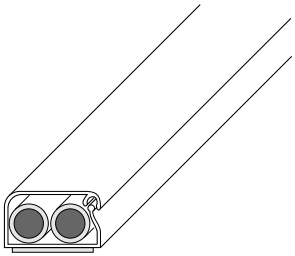
Nice-Duc comes in two sizes:

Mini: 1/4" high by 7/16" wide

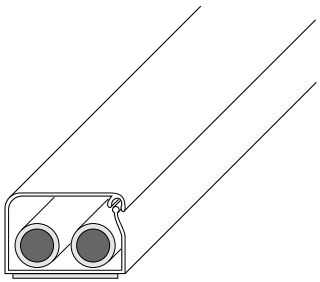
Standard: 3/8" high by 5/8" wide

All sizes come in 60" (152.4 cm) lengths. A variety of right angles, T-connectors, inside and outside corners and end caps are also available.

To order, call: **1-800-547-2556**.



Mini— 1/4" (0.64 cm) high
x 7/16" (1.11 cm) wide
x 60" (152 cm) long
Available in: white, off-white, brown



Standard— 3/8" (0.953 cm) high
x 5/8" (1.59 cm) wide
x 60" (152 cm) long
Available in: white, off-white, brown

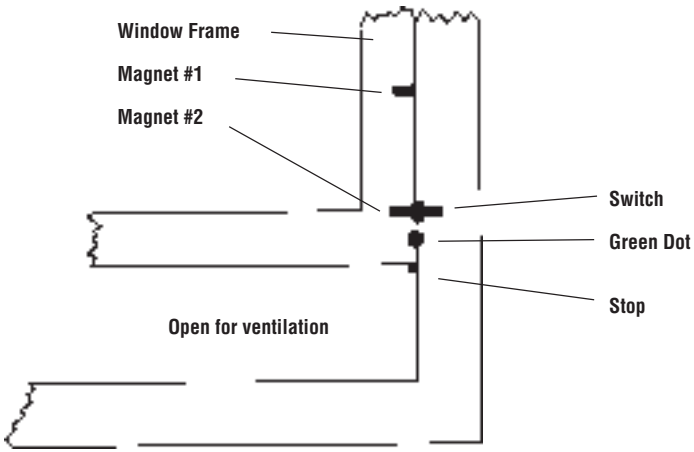
VENTILATING WINDOWS WITHOUT FALSE ALARMS

Sentrol recommends two methods for opening windows for ventilation without causing a false alarm.

First, a small dot, either adhesive or painted, can be added to both the window frame and window jamb that marks the spot above which the window should not be opened. The user simply aligns the halves of the dot as shown below.

Second, a window stop can be provided so that the window cannot pass the alarm point in normal usage. Drill a hole in the jamb for the stop. Use a nail or small dowel as the stop. The dowel or nail should protrude from the hole so it supports the opened window, as shown below.

See also "Ventilating Windows With a Wide Gap Magnet" — page 96.



PROTECTING SLIDING ALUMINUM DOORS

APPLICATION

Protecting sliding aluminum doors against unauthorized entry.

There are several methods for protecting sliding aluminum doors:

- Parallel recess mount
- Perpendicular recess mount
- Parallel recess mount with adhesive surface mount switch
- Screw-down surface mount — do not drill into glass!
- Adhesive surface mount

INSTALLATION

The installation technique you select will depend on the gap distance available and ease of installation.

Remove door as shown in Figure 1. Figure 2 illustrates mounting positions.

RECOMMENDED PRODUCTS

1035, 1035W, 1055, 1055W, 1075, 1075W, 1085, 1085T, and 5725 ShatterSwitch.

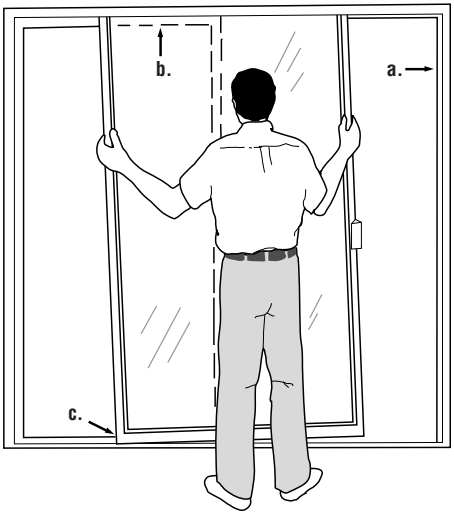


Figure 1.
a. Open door as far as required
b. Lift door straight up into upper channel
c. Pull door out from the bottom

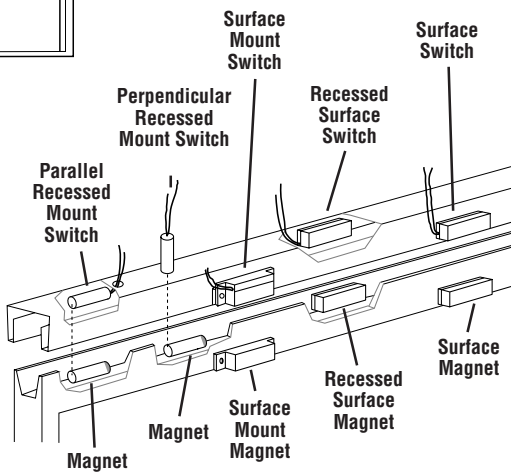


Figure 2.

Note: Align end of switch with end of magnet.

PROTECTING PATIO DOORS

APPLICATION

Use the 3610 Patio Door Magnetic Contact, which contains a switch assembly and plunger that mount independently of each other. The magnetic contact provides alarm annunciation and the locking mechanism secures the sliding glass door. In the event the door is pried from the channel, and the force dislodges the plunger housing, it creates an alarm condition.

INSTALLATION

Close sliding door or window. Position switch next to the door on the side opposite the latch. Using the mounting plate provided and with optional spacers if required, adjust the height of the unit so the plunger pin can extend unobstructed into the door frame without interference from the track.

Once the height is determined, adjust the unit horizontally to the optimum plunger position. Verify the plunger can travel into the door or window frame at least 1/4 inch.

CAUTION: Make sure the plunger hole will not interfere with the glass pane or weather stripping. Be sure to note the location of any wheels in the door before drilling.

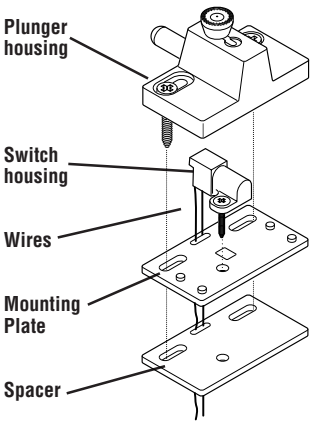
Using the spacer as a template, set the switch housing onto the spacer and mark the holes. Drill a hole into the floor or casing for the wire, and connect the leads to a normally closed alarm loop. Mount the plastic switch housing with the #6 screw provided, using the mounting plate or optional spacer if needed.

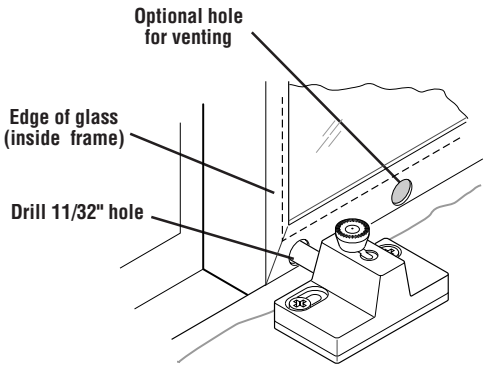
Drill two mounting holes for the metal housing. Mount the metal housing using the #8 screws provided. With the door or window in the closed position, mark the location of the plunger on the frame. Open the door or window and drill a minimum 11/32 inch hole into the marked location on the frame, being careful not to over-drill the hole. Maximum travel of the plunger will not exceed 3/8 inch.

To ventilate with the door or window, drill an additional hole in the frame. This allows the door to be open but still protected.

RECOMMENDED PRODUCTS

3610





PROTECTING AUTOMATIC GARAGE DOOR— SWITCH SHUNTING

APPLICATION

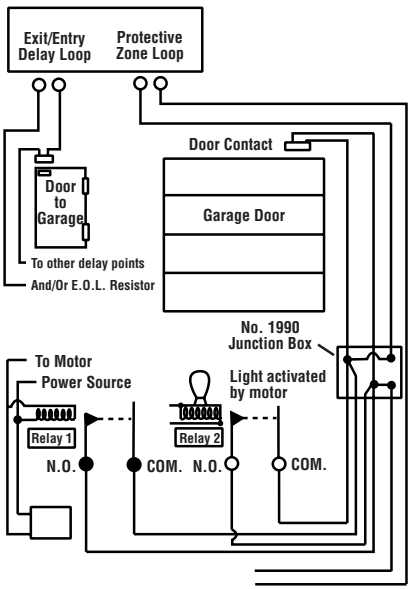
How to provide "on" and "off" alarm protection when an exit delay is part of the system, and entrance and/or exit is via a door to the garage. The garage door must also have an automatic opener that has a timed entrance light.

INSTALLATION

Two 110-volt AC SPST relays are needed (hermetically sealed preferred). The coil of Relay No. 1 is placed across the AC line going to the motor which opens the garage door. The coil of Relay No. 2 is placed across the AC line going to the light on the garage door opener.

Both sets of the 110-volt relay contacts are placed in parallel, and together are connected across the garage door contact already in the protective loop. A junction box can be used to ease wiring.

Theory of Operation: Before leaving home, the user arms the alarm system and leaves via the door leading to the garage, which would normally be on the Exit/Entry delay loop. As user signals garage door to rise, Relay No. 1 activates as the motor starts and shunts the garage door contact, thus preventing an alarm. As door rises, the light comes on and Relay No. 2 activates, also shunting the garage door contact. Once the door is all the way open, the motor shuts off, causing Relay No. 1 to drop out. However, the light remains on for a fixed period of time, so Relay No. 2 remains activated, still shunting the garage door contact and preventing an alarm. Prior to the light going out (this should be timed), the user exits from the garage and signals for the door to lower. The motor starts, again activating Relay No. 1 and shunting the garage door relay as before. The light, still on, restarts the timed cycle, and Relay No. 2 remains activated. When the door is completely closed, Relay No. 1 drops out. After a fixed time, Relay No. 2 drops out and returns the loop to the garage door contact and normal operation.



PROTECTING WOOD DOOR THRESHOLDS WITH RECESSED CONTACTS

APPLICATION

For wood doors with aluminum thresholds, it is sometimes convenient to mount the magnet in the bottom of the door and the switch in the hollow space beneath the threshold.

Note: Because of the distance between the magnet and switch, a Sentrol wide gap switch should be used.

INSTALLATION

Select a recessed-mount wide gap switch.

Drill horizontal hole for magnet in outside edge of door. Coat magnet with RTV mounting compound. Insert magnet in hole. If using a wide gap switch with bare magnet, insert with red end of magnet toward outside of door (switch is polarity sensitive).

Remove threshold.

Attach switch on inside of threshold with RTV mounting compound. Position it so it will be directly beneath (and parallel to) magnet when threshold is replaced.

Replace threshold.

Test switch with ohmmeter while opening and closing door.

Connect switch to alarm loop.

RECOMMENDED PRODUCTS

1055W, 1059W, 1065W, 1075W, RTV 1905.

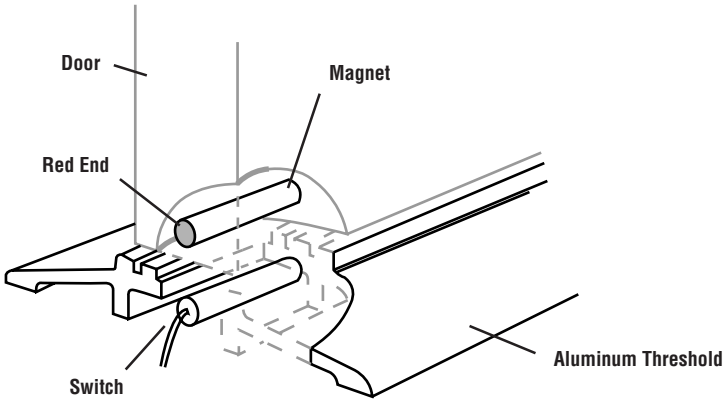


Figure 1. Wood Door Installation

PROTECTING STEEL DOORS WITH THRESHOLD CONTACTS

APPLICATION

For steel doors with aluminum thresholds, it is sometimes convenient to mount the magnet in the bottom of the door and the switch in the hollow space beneath the threshold.

Note: Because of the distance between the magnet and switch, a Sentrol wide gap switch should be used.

INSTALLATION

Use a Sentrol steel door magnet combined with a Sentrol wide gap switch.

Remove door from hinges. Drill 1" (2.54 cm) diameter hole in bottom of door about 2" (5 cm) from front edge of door. Glue with RTV or epoxy and snap-fit magnet into hole.

Remove threshold.

Attach switch on inside of threshold with RTV mounting compound. Position it so it will be directly beneath and perpendicular to magnet with end centered beneath it when threshold is replaced.

Replace threshold and door.

Test for correct operation with ohmmeter while opening and closing door.

Connect switch to alarm loop.

RECOMMENDED PRODUCTS

1055W, or 1075W, with 1921 magnet, RTV 1905.

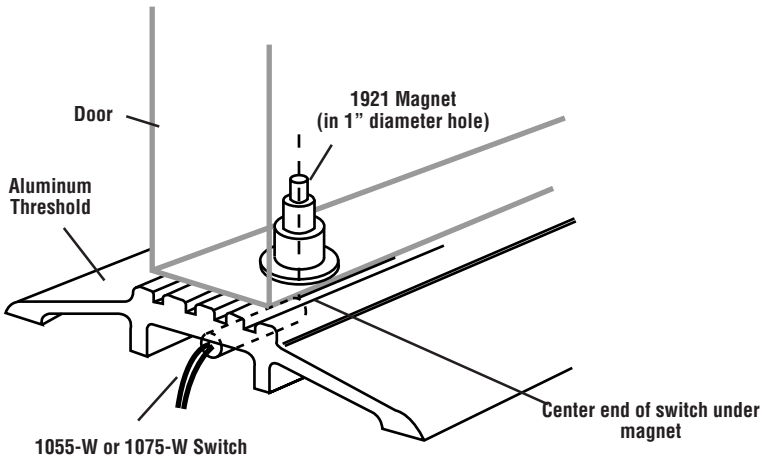


Figure 2. Steel Door Installation

PROTECTING WOOD/STEEL DOORS WITH ROLLER PLUNGER CONTACTS

APPLICATION

Wood and steel doors can be protected with roller plunger contacts that can be installed without removing the door from its hinges. The versatile Sentrol 3005 and 3008 Roller Plunger Contacts can also be used on windows and sliding patio doors. Roller plungers are more versatile than plunger switches, which work in limited applications. The 3008 is designed specifically for fight, thin-framed window and door applications.

Roller plunger switches can also be used to protect high-value objects such as antiques, rare books, or works of art by placing the object on the recessed contact.

Note: In order to comply with UL installations, the contact should not be used on exterior doors that open outward.

INSTALLATION

The roller plunger contact must be mounted on the hinge side of the door or window to be protected.

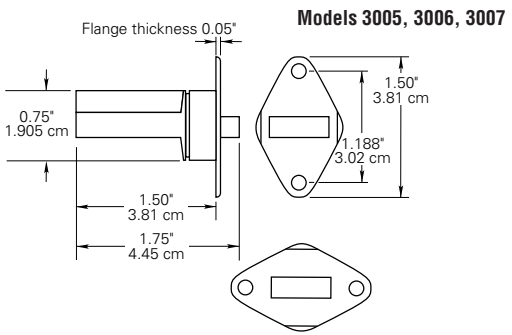
Open the door or window. Drill a 3/4" (1.9 cm) diameter hole in frame. Hole should be 1.5" (3.81 cm) deep for the 3005 and 3/4" (1.9 cm) deep for the 3008.

Run wire through the frame and connect switch to the alarm loop. Insert switch in hole and test for proper operation by opening door or window.

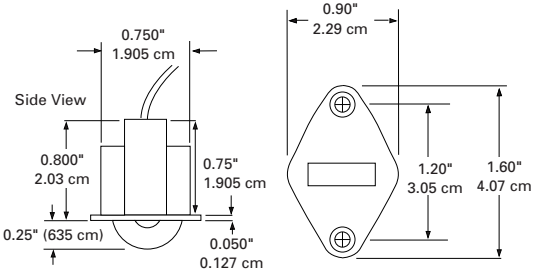
Screw switch in place.

RECOMMENDED PRODUCTS

3005, 3008



Models 3002, 3003, 3004



Model 3008

PROTECTING DOORS AND WINDOWS WITH UNEVEN WIRING HOLES

APPLICATION

It may happen, during installation, that holes are over-drilled, under-drilled, or have an uneven diameter. Oversized holes can occur due to difficulties in drilling, especially in tight quarters or enclosed spaces. Press-fit 3/8" (0.95 cm) diameter switches can actually fall out of over-sized holes even when they initially seem to fit well. This necessitates a costly service call and the use of adhesives (which take time to apply, and also increase service time should the switch need to be removed).

Additionally, many switches cannot withstand the pressure of green wood in new construction. Green wood dries and shrinks, damaging reed contacts.

Sentrol's 1275 addresses these problems. Its flexible, collapsible wings surrounding the switch "barrel," accommodate smaller or larger holes, and cushion the reed. With a 1-1/4" (3.175 cm) gap, the 1275W also reduces costly time aligning the switch and magnet on loose-fitting doors and windows.

INSTALLATION

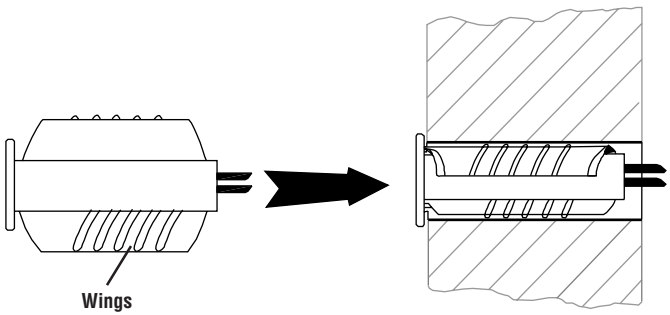
Decide on best placement of switch in header or sill, and best position of magnet in door or window frame. Drill 3/8" (0.95 cm) diameter holes. Switch measures 1" (2.54 cm) long. The magnet is about 1-1/3" (3.39 cm) long.

Pull wire and connect to switch. Squeeze 1275's "wings" and press fit switch into place. Then press fit magnet into its hole.

Test for continuity, then connect switch to loop.

RECOMMENDED PRODUCTS

1275, 1275W



INCREASING GAP DISTANCE OF RECESSED SWITCH WITH SECOND MAGNET

APPLICATION

You can increase the gap distance of a recessed switch in a door about 40% by placing two magnets side-by-side. This is helpful if you need to increase the gap distance but do not have a wide gap switch.

Note: Mount magnets with like poles in the same direction (magnets will actually push away from each other when so mounted).

Note: Observe correct polarity for wide gap switches (red ends of magnets must be mounted *away* from switch).

INSTALLATION

Mount switch as desired.

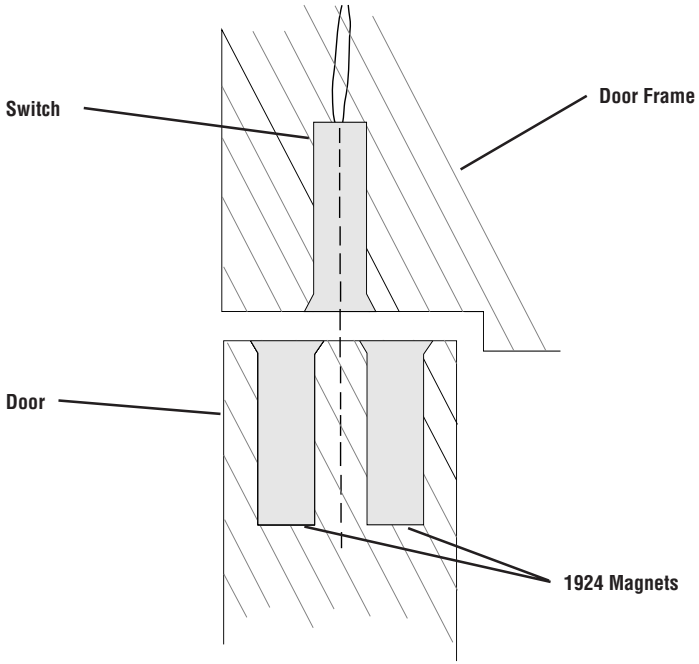
Drill holes for magnets, spacing them equal distances from a line drawn through the center of the switch. Mount magnets as close together as possible.

Attach ohmmeter to switch leads and test for proper operation.

Connect switch to alarm loop. Retest for proper operation.

RECOMMENDED PRODUCTS

1075, 1075W, 1275, 1275W, with additional 1924 magnet

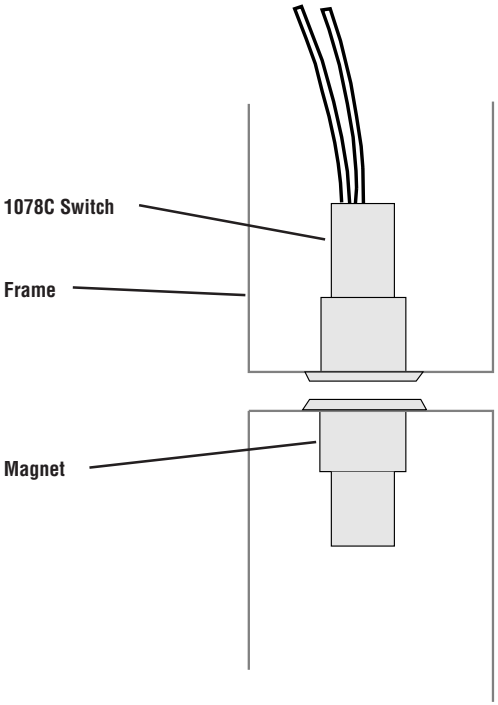


REPLACING MECHANICAL RECESSED TYPE SWITCHES IN DOORS

APPLICATION Floating magnet-type mechanical switches can fail due to corrosion (unit is not hermetically sealed), uneven wear of the plastic body, or crushing of the unit between the door and frame. The use of a Sentrol switch is an attractive alternative.

INSTALLATION If the unreliable switch is a "repel" magnet type, remove the switch and magnet and replace with hermetically sealed, 3/4" (1.9 cm) diameter Sentrol 1078C-1. Hole should be 1-1/2" (3.81 cm) deep. The 1078C-1 self-locks in place, requiring no screws.

RECOMMENDED PRODUCTS 1078C



PROTECTING SLIDING ALUMINUM WINDOWS—

APPLICATION 1

This page and the following two pages provide installation instructions for protecting sliding aluminum windows with recessed or surface mount switches, or a combination of both.

Installation with Removal of Window

INSTALLATION

Remove window from frame as follows (Figure 1):

a. Open window as far as required (some windows have spring locks in upper frame channel past which the window must be opened before it can be removed).
b. Lift window straight up into upper channel.
c. Pull window straight out from bottom.

Locate desired mounting position for switch — either parallel to magnet or perpendicular (Figure 2).

Drill hole in window frame. Run wires. Insert switch into frame.

Mount magnet on inside of upper window channel, toward top of channel, with RTV mounting compound. RTV should sufficiently set in about 15 minutes to permit replacement of window into frame.

Reinsert window in frame by reversing procedure in Step 1.

Check continuity with window in closed position.

Notes: Wide gap switches are polarity sensitive. Red tip of magnet must be aligned as shown.

Magnet must **not** be centered under switch — a null may result, and switch will not operate.

RECOMMENDED PRODUCTS

1055, 1055W, 1065, 1075, 1275W, RTV 1905

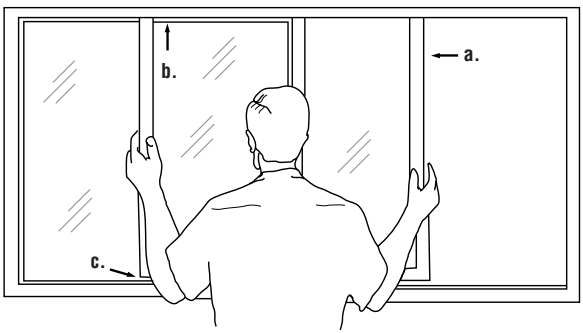
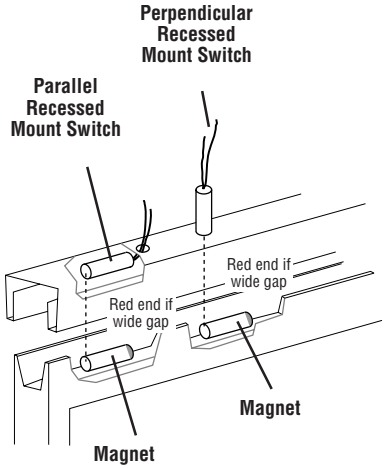


Figure 1.



Note: Align end of switch with end of magnet

Figure 2. Recessed Installation

PROTECTING SLIDING ALUMINUM WINDOWS

APPLICATION 2 **Installation without Removing Window**

INSTALLATION Removal of window is not necessary unless switch leads are to be run into channel.

If using self-adhesive switch, clean surface with alcohol before mounting to ensure good bond. Mount switch on sash in desired position (Figure 3). Mount magnet on window directly opposite switch when window is closed.

Check for continuity with window in closed position.

RECOMMENDED PRODUCTS 1035, 1035W, 1085, 1085T

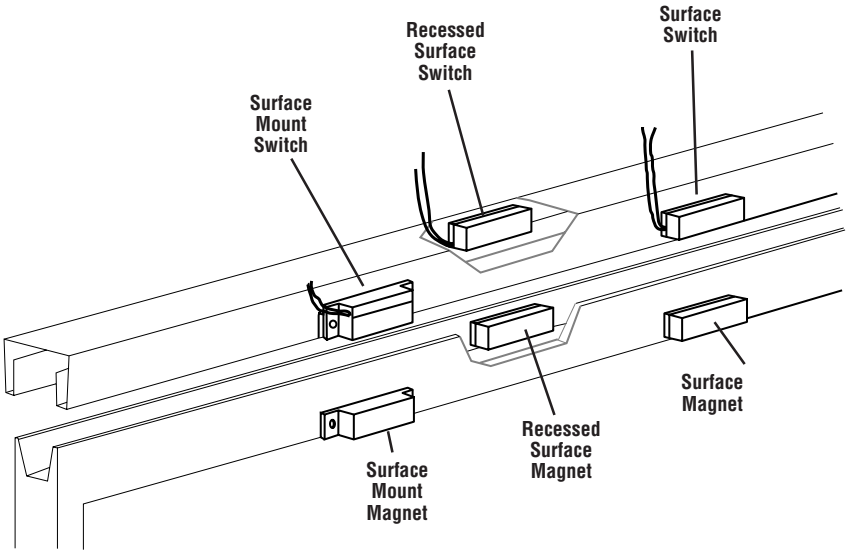


Figure 3. Surface Installation

PROTECTING SLIDING ALUMINUM WINDOWS

APPLICATION 3 **Combined Recessed and Surface Installation**

INSTALLATION

Remove window from frame (see instructions in "Installation with Removal of Window"— Application 1, page 93).

A 1075 or 1075W switch with a 1927 magnet is ideal for this application. The magnet can be quickly installed using double-sided tape instead of RTV mounting compound, which takes 15 minutes to set up.

Locate desired mounting position for switch perpendicular to magnet as shown in Figure 4.

Drill hole in window frame and run wires. Insert switch into frame.

Mount magnet on inside of upper window channel using the double-sided tape provided. The Sentrol logo must read left to right. The "S" in Sentrol should be aligned with the centerline of the switch.

Reinsert window in frame.

Check continuity with window in closed position.

RECOMMENDED PRODUCTS

1075W with 1927 magnet

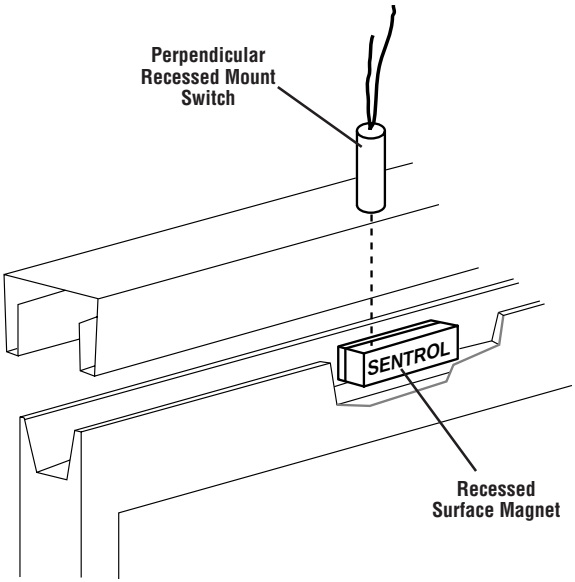


Figure 4. Combined Recessed and Surface Installation

VENTILATING WINDOWS WITH A WIDE GAP MAGNET

APPLICATION

Venting sliding windows and doors using two magnets and one wide gap switch. It is possible to obtain up to 5" (12.7 cm) ventilation with a 1-1/2" (3.81 cm) gap between the magnets and switch.

INISTALLATION

Select a wide gap recessed switch and an additional 3/8" (0.95 cm) diameter by 1-1/2" (3.81 cm) long magnet.

Remove window from frame (see Figure 1, page 93).

Slightly over-drill vertical hole for switch in top of frame, about 5-1/2" (14 cm) from edge of frame. Coat switch with RTV mounting compound and insert in hole.

Mount magnets on inside of upper window channel toward top of channel with RTV mounting compound (Figure 1). Locate one magnet at edge of channel, red end toward edge of window. Locate other magnet with non-red end under switch — red end pointing away from other magnet.

After RTV sets (about 15 minutes), reinsert window in frame.

Attach ohmmeter to leads and test for proper switch operation. If switch "drops out" anywhere within ventilation range, move inside magnet (and switch) closer to outside edge of door or window.

Connect to alarm loop.

Instruct customer on proper use of ventilation feature. If necessary, add a window stop or mark maximum permissible opening to prevent false alarms.

Note: Sliding windows can also be vented using a surface mounted switch and magnet. Also, 1275W series switches can be used for this application.

RECOMMENDED PRODUCTS

1035W, 1145W, RTV 1905

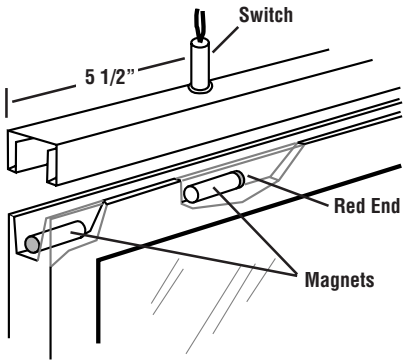


Figure 1. Recessed Installation

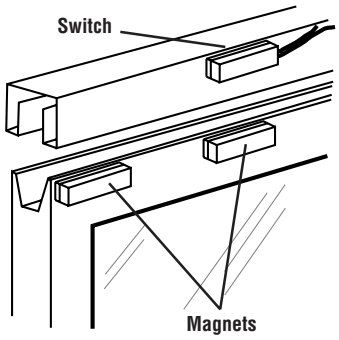


Figure 2. Surface Mount Installation

PROTECTING THIN FRAME WINDOWS

APPLICATION

Securing Pella or sliding aluminum windows or doors which have thin window frames and limited space for mounting the switch. Sentrol's 1145-W ultra-miniature surface-mount magnetic contact, with regular or wide gap operating distance, is ideal for this application.

INSTALLATION

Determine best position for switch and magnet. Magnet will be mounted on frame of glass.

Switch and magnet are mounted with very high bonding tape, silicon glue or brass brads, depending upon the frame material.

Clean surface with alcohol for good adhesion.

For wide gap versions, switch and magnet **must** be mounted with mounting holes to the "outside" in "four-corners" position (Figure 1), with Sentrol logo on switch and magnet reading from left to right. This assures proper polarity. Wide gap operating distance is 3/4" (1.9 cm) for 1145W model.

RECOMMENDED PRODUCTS

1145W

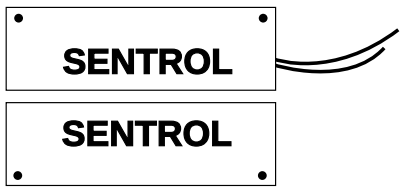


Figure 1.

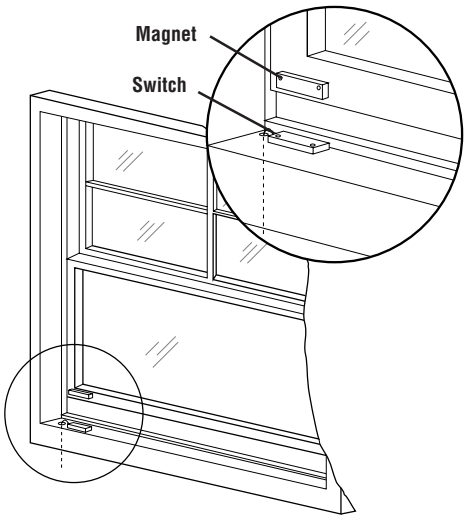


Figure 2. Crank-Out Window

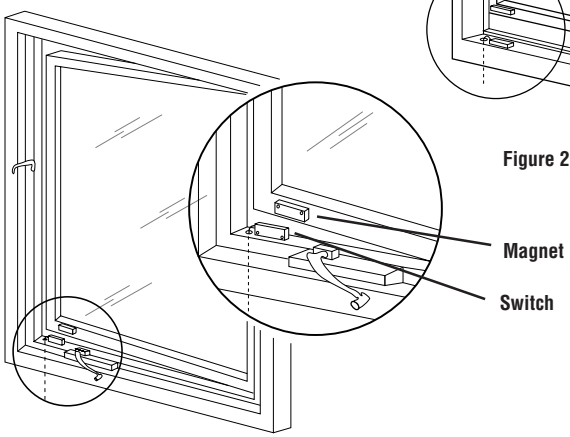


Figure 3. Double-Hung Window

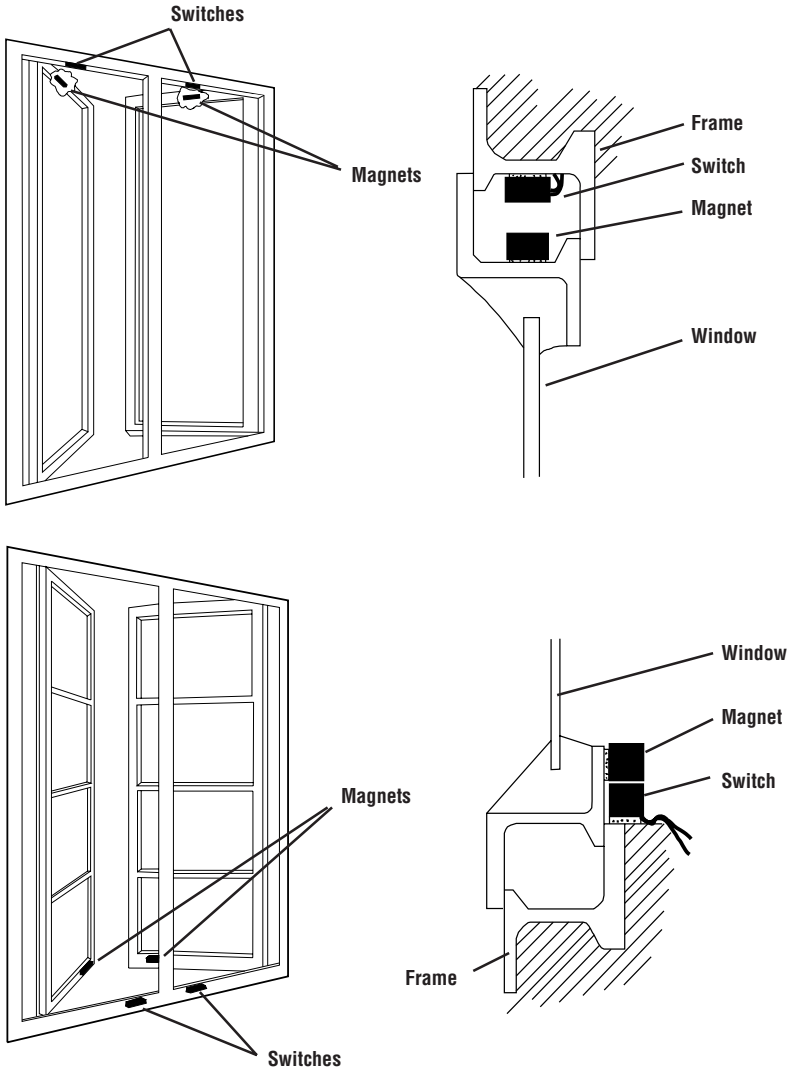
PROTECTING THIN STEEL FRAME WINDOWS

APPLICATION Installing magnetic contacts on windows with thin steel frames when a thin section of steel presents drilling and tapping difficulties.

INSTALLATION Use an adhesive-mount switch. Clean frame with alcohol for good adhesion. Two methods are shown — one recessed, one surface mount. Drill holes to conceal wiring if desired.

Note: The 1145W miniature contact is ideal for this application.

RECOMMENDED PRODUCTS 1035W, 1145W



PROTECTING DOUBLE HUNG WINDOWS

APPLICATION 1

Recessed Installation in Top of Upper Window and Bottom of Lower Window

Protecting double hung windows with recessed or surface-mounted magnetic contacts with regular or wide gap switches.

Select position of magnet in window frame. Select position of switch in head or sill. Slightly over-drill holes for switch and magnet. Coat switch and magnet with RTV mounting compound. Insert switch and magnet in holes.

Note: Wide gap switches are polarity sensitive. If switch uses bare magnet, observe correct polarity by mounting magnet with red end *away* from switch.

INSTALLATION

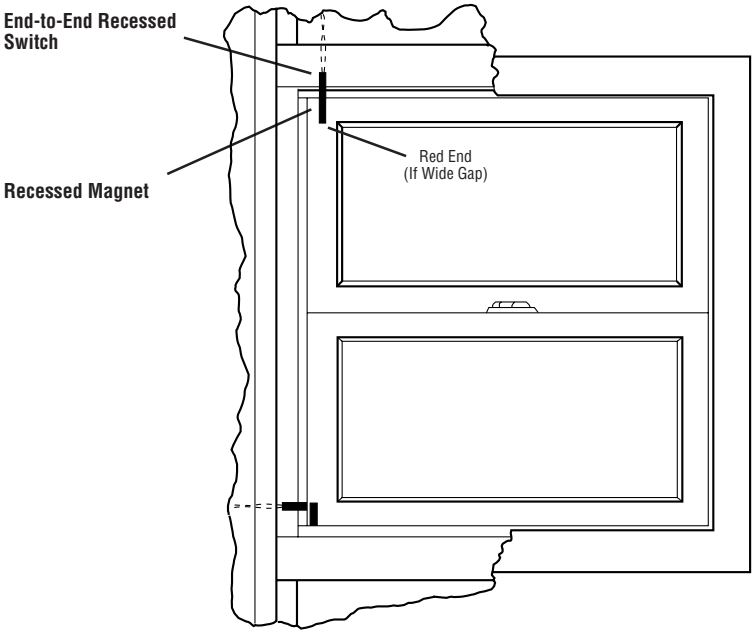
Attach ohmmeter to leads and check for proper operation.

Connect switch to loop.

If desired, cover switch and magnet with wood filler to camouflage and to improve appearance.

RECOMMENDED PRODUCTS

1015, 1055, 1059, 1065, 1075, 1125W, 1275W, RTV 1905



PROTECTING DOUBLE HUNG WINDOWS

APPLICATION 2

Recessed Installation in Sides of Window

This method of protecting double hung windows is recommended only when walls are open and readily accessible for running wires (i.e., during construction or remodeling). A finished wall will make this a very difficult job, requiring extremely awkward "fishing."

Requires perpendicular mounting of switch and magnet, and may require a wide gap between switch and magnet.

INSTALLATION

Drill vertical hole in window frame for magnet. Coat magnet with RTV mounting compound and insert in hole.

Pick position for switch. This will be determined by two requirements:

1) Magnet must **not** be centered under switch. End of switch must be opposite the end of magnet (perpendicular) as shown.
2) If wide gap switch is used, observe correct polarity by mounting magnet with red end *away* from the switch end with wires.

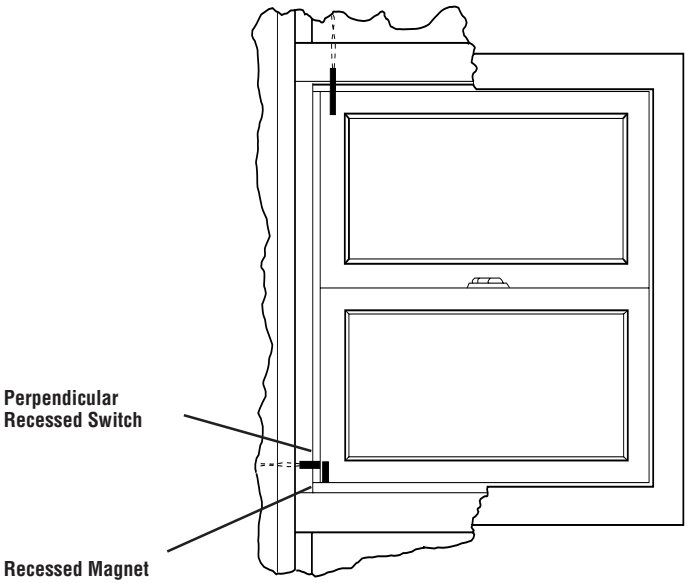
Drill hole for switch and insert switch.

Attach ohmmeter to leads. Close windows and test for correct operation.

Connect switch to loop.

RECOMMENDED PRODUCTS

1055, 1059, 1065, 1075, or same models in wide gap, RTV 1905



PROTECTING DOUBLE HUNG WINDOWS

APPLICATION 3 **Surface Installation on Upper and Lower Windows**

Select appropriate surface mount switch. Mount switch on head, sill, or jamb in desired position.

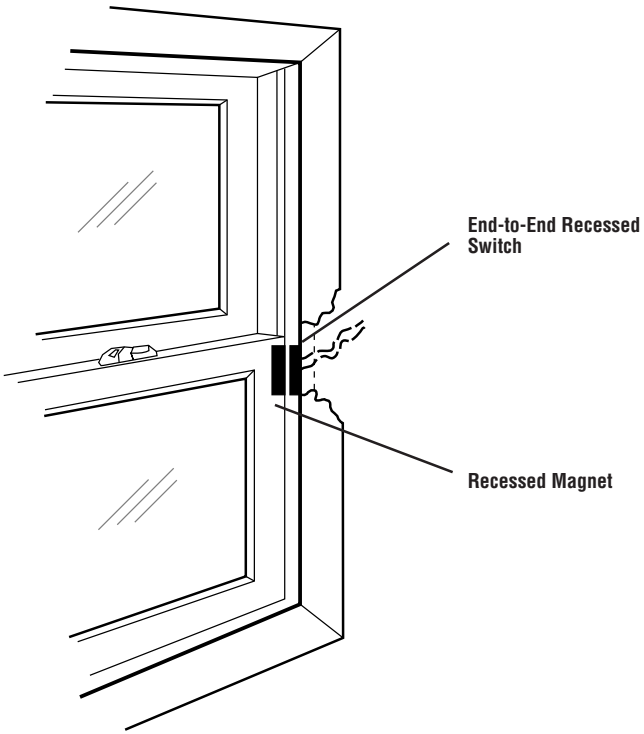
INSTALLATION Mount magnet on window, directly opposite switch when window is closed. If using switch with self-adhesive, clean surface with alcohol before mounting to assure good bond.

Note: If wide gap switch is used, be certain to align labels on switch and magnet so they read in the same direction (switch is polarity sensitive).

Attach ohmmeter to leads and test for correct operation.

Connect switch to alarm loop.

RECOMMENDED PRODUCTS 1032, 1035, 1045T, 1082, 1085, 1085T, or same models in wide gap



PROTECTING PELLA CASEMENT OR AWNING WINDOWS

APPLICATION 1

Surface Mount Contacts

The miniature size and large number of mounting options available for the Sentrol 1025 series make these switches ideal for protecting Pella casement windows. The switch and magnet are concealed when the window is closed. Concealed surface mounting offers benefits over recessed mounting because the construction of these windows makes recess mounting difficult without breaking the glass.

INSTALLATION

Important: Pella recommends against mounting switches in sills due to possible damage from water. If you must drill into the sill, make sure you provide a solid, tight seal using RTV compound.

Select position of switch and magnet. If ventilation is desired, locate near hinged side of window.

Drill holes for wires. Slant back at 15˚ to 30˚ to make sure wire will go inside wall (Figures 1 & 2).

If 1025W wide gap is used, align so that hinge ends of switch and magnet are next to each other (switch is sensitive to polarity of magnet).

Note: There is nominally 1/2" (1.27 cm) clearance at the widest point between the bottom or top of window and the sill. Since the widths of the 1025 switch and magnet with flanges attached are 1/4" (0.635 cm) each, it may be necessary to remove one or both flanges to allow sufficient clearance to mount switch and magnet.

MOUNTING METHOD 1:

Mounting with Screws or Nails

- Open switch or magnet so flange is perpendicular to body of switch or magnet.
- Attach with nails or screws through flange.
- Swing body of switch or magnet into flange. Press until body catches on flange.

MOUNTING METHOD 2:

Mounting with Self-adhesive Tape

- Cut off flange at hinge with diagonal cutters.
- Clean back of switch, magnet, and surfaces where switch and magnet will be attached with alcohol. Remove backing from tape and attach tape to switch or magnet, then attach switch or magnet to cleaned surface.

MOUNTING METHOD 3:

Mounting with Glue, Epoxy, or RTV Mounting Compound

- Cut off flange at hinge with diagonal cutters.
- Attach switch or magnet to surface with glue, epoxy, or RTV mounting compound.

Attach ohmmeter to switch leads and check for proper operation of switch. Connect switch to alarm loop.

RECOMMENDED PRODUCT

1025, RTV 1905

PROTECTING PELLA CASEMENT OR AWNING WINDOWS

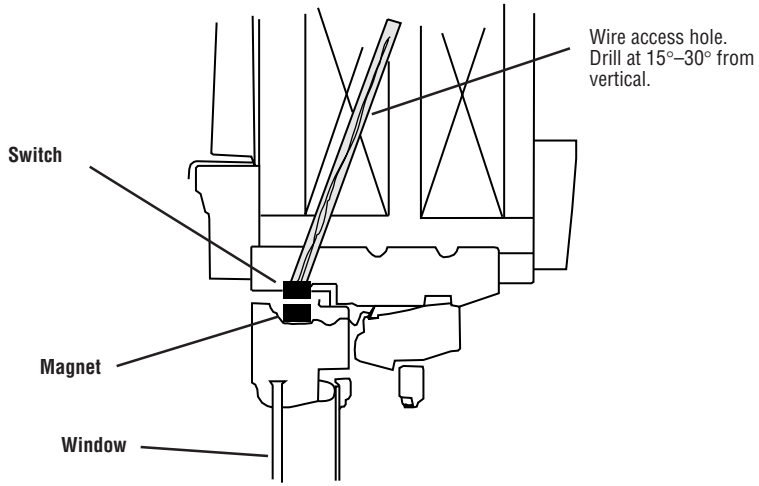


Figure 1. (Top of Window)

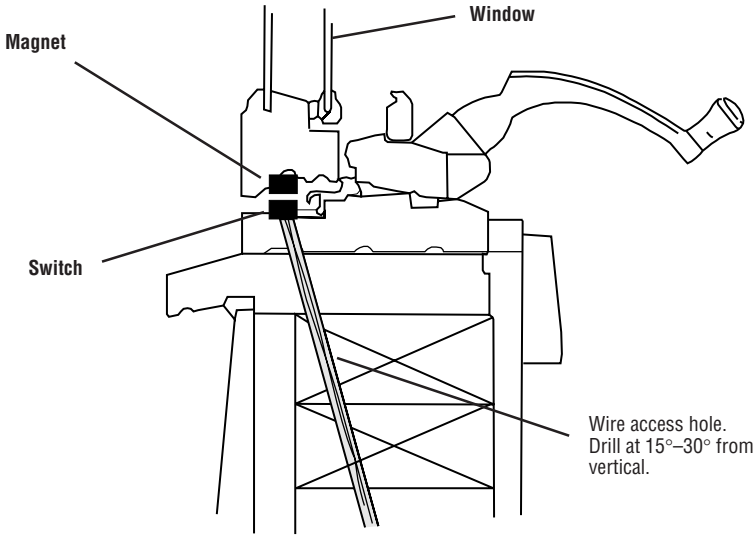


Figure 2. (Bottom of Window)

PROTECTING PELLA CASEMENT OR AWNING WINDOWS

APPLICATION 2

Recessed Contacts

Pella casement and awning windows may have two separate pieces of glass or one Thermopane. It is very important, therefore, to take extra care when drilling the mounting holes to avoid the glass.

INSTALLATION

Important: Pella recommends against mounting switches in sills due to possible damage from water. If you must drill into the sill, make sure you provide a solid, tight seal using RTV compound.

Select position of switch in top of window frame if wires will run through attic, or in bottom of window if wires will run through basement.

Drill 1/4" (0.635 cm) diameter x 1-1/4" (3.175 cm) deep hole in window sash.

Insert magnet. If using wide gap switch, insert magnet with red end away from the switch end without wires.

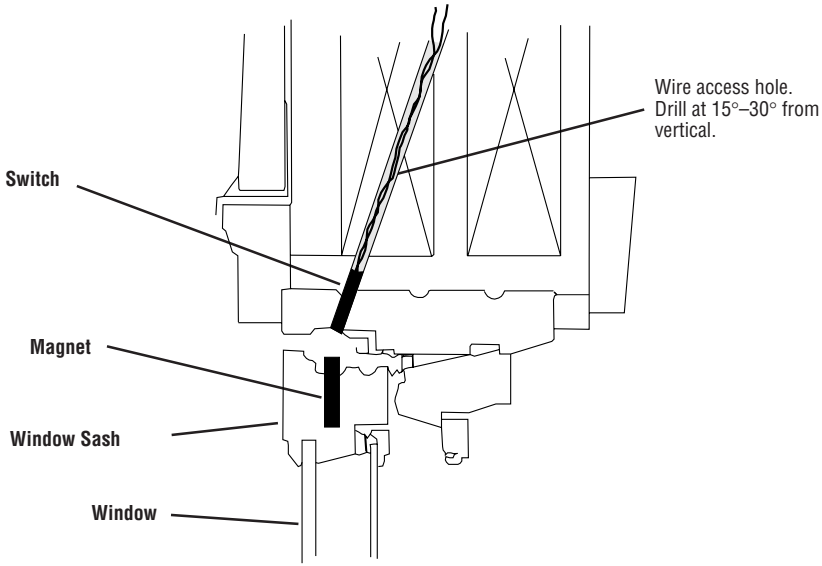
Drill 1/4" diameter hole in frame at approximately 15° toward inside of wall. Align switch hole center to within 1/4" of center of magnet.

Insert switch (1055W placed close to the pivot point will allow for some ventilation).

Test circuit, and glue switch and magnet in place.

RECOMMENDED PRODUCTS

1015, 1015W, 1055, 1055W, 1125W



PROTECTING ANDERSON CASEMENT WINDOWS

APPLICATION 1

Surface Mount Contacts

Using surface mount contacts, the switch and magnet are both concealed when the window is closed. Use off-white, white or mahogany brown units to match plastic cover on the window.

INSTALLATION

Important: Anderson recommends against mounting switches in sills due to possible damage from water. If you must drill into the sill, make sure you provide a solid, tight seal using RTV compound.

Select position of switch and magnet. Ventilation may be achieved with the use of a wide gap switch placed on the top of the window near the hinged side.

Drill hole for wires. Slant back 15° to 30° to make sure wires go inside wall. Drill at back of window frame as shown.

Clean surfaces with alcohol to remove dirt, grease and moisture.

Peel paper from back of switch and install as shown, or screw in place (depending on switch used).

Peel paper from back of magnet. Install on sash frame with Sentrol name reading the same direction as on switch.

Close window and test circuit.

RECOMMENDED PRODUCTS

1125, 1035, RTV 1905

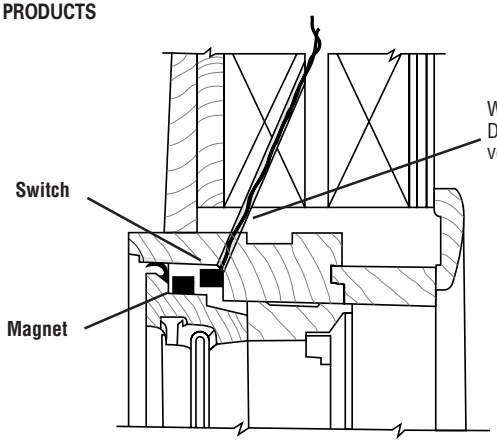


Figure 1. (Top of Window)

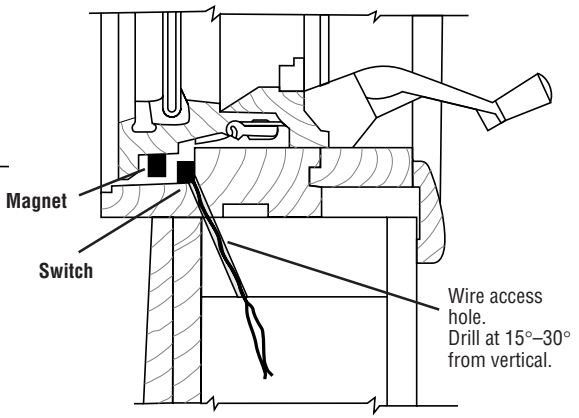


Figure 2 (Bottom of Window)

PROTECTING ANDERSON CASEMENT WINDOWS

APPLICATION 2

Recessed Contacts

Two methods for protecting Anderson casement windows are shown here. Figure 1 shows the standard method. Figure 2 shows the method used if ventilation is required. It is important to note that both methods require the magnet be placed in the sash on the step closest to the inside of the window.

INSTALLATION

Important: Anderson recommends against mounting switches in sills due to possible damage from water. If you must drill into the sill, make sure you provide a solid, tight seal using RTV compound.

Install magnet in sash on the step closest to the inside. Drill hole 1/4" (0.635 cm) diameter x 1-1/4" (3.175 cm) deep. This step has a cross section of about 1/2" x 1/2" (1.27 cm x 1.27 cm) and will hold the 1/4" diameter magnet by centering the hole in the section.

Drill hole for switch opposite magnet. Angle this hole back toward inside of wall about 15°.

Install switch and test.

Cover ends of switch and magnet with silicone rubber to protect from weather.

RECOMMENDED PRODUCTS

1015, 1015W, 1055, 1055W, 1125W, RTV 1905

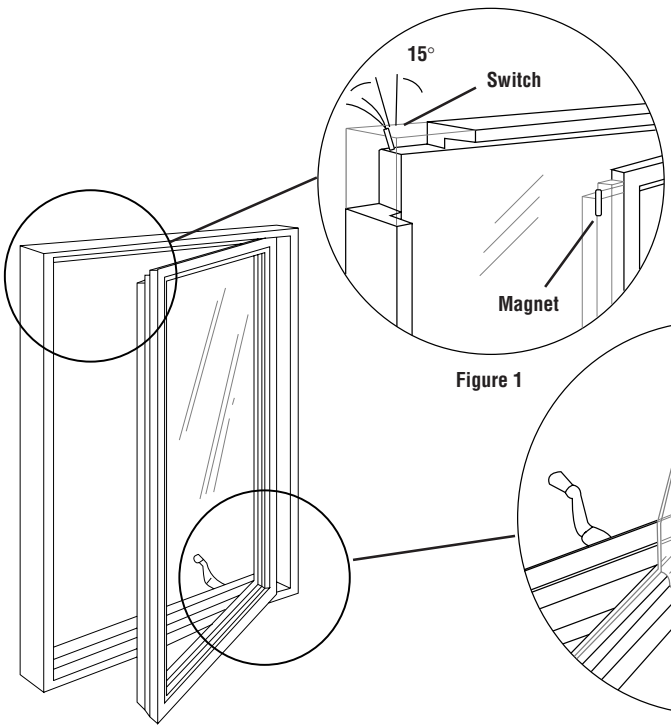


Figure 1

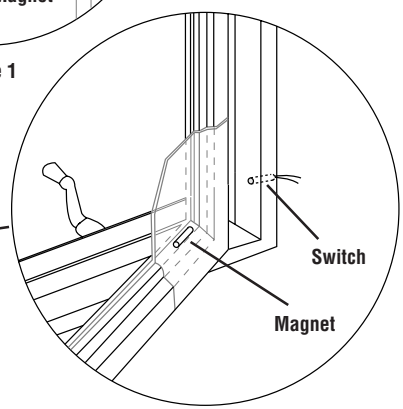


Figure 2

PROTECTING ROOF ENTRY— PROTECTING HINGED SKYLIGHTS

APPLICATION Protecting against unwanted intrusion through a hinged skylight using surface-mount magnetic contacts.

INSTALLATION Select location for switch and magnet on side opposite the hinges. Mount switch on frame and magnet on skylight. Observe gap distance tolerances. You may have to use spacers to achieve proper alignment.

If skylight has steel frame, gap distance is generally reduced by half. In this case, use wide gap switches. Mount switch and magnet so Sentrol logo on both reads in the same direction (switch is polarity sensitive).

Test for proper operation.

RECOMMENDED PRODUCTS 1032, 1035, 1085, 1145, 1032W, 1035W, 1085W, 1085TW, 1085T

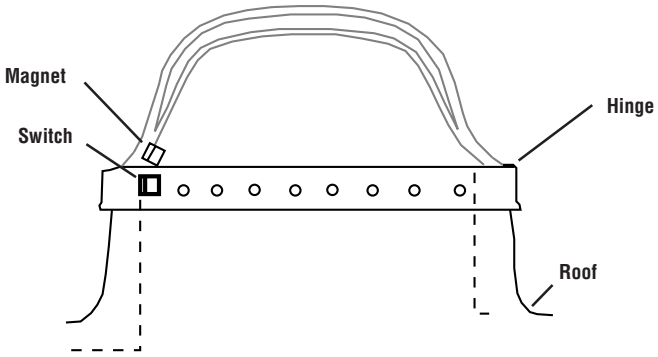


Figure 1

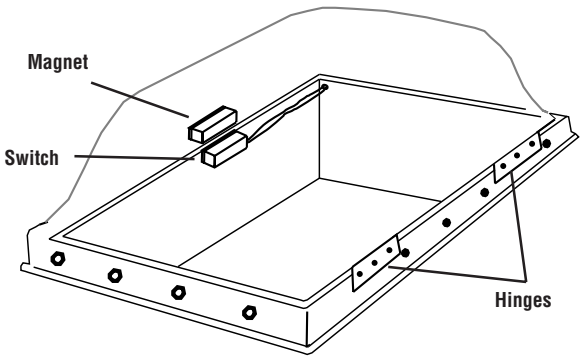


Figure 2

PROTECTING ROOF ENTRY— PROTECTING DROP-DOWN STAIRS—ATTIC ENTRY

APPLICATION

Often the entry door from the garage to the house will be alarmed and the garage door will be left unsecured. An intruder can gain access to the garage door, enter the attic via the drop-down stairway, cut a hole through the ceiling between the joists, and drop into the house, all without triggering the alarm.

INSTALLATION

Position switch on stairway frame, and magnet on drop-down portion of the stairway. There must be no interference to stairway mechanism from switch or magnet.

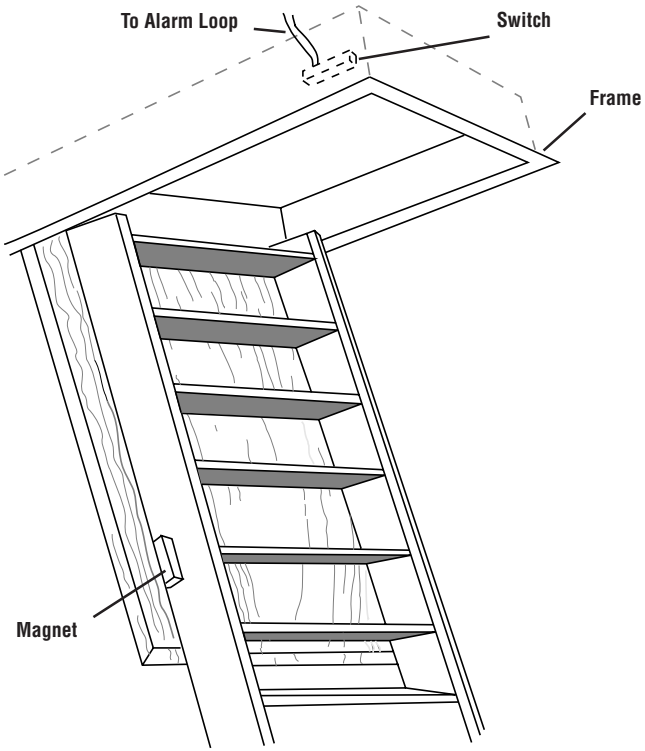
Permanently attach switch to frame, and temporarily attach magnet to stairway with masking tape. Connect ohmmeter to switch lead, close stairway, and test for continuity.

Permanently attach magnet to stairway. Connect switch leads to alarm loop.

Note: A Sentrol surface mount switch may be used. For high-security and wide gap switches, labels on switch and magnet must read in the same direction. Also, observe minimum and maximum gap distances for high-security switches.

RECOMMENDED PRODUCTS

1035W, 1045T, 1082, 1085W, 1085TW, 2500 or H series



PROTECTING ROOF ENTRY USING BARRIER BARS®

APPLICATION

Protect against unwanted intrusion through a hinged skylight, attic vents, basement windows, or any other oddly shaped opening, with pressure switch activated, spring loaded Barrier Bars.

INSTALLATION

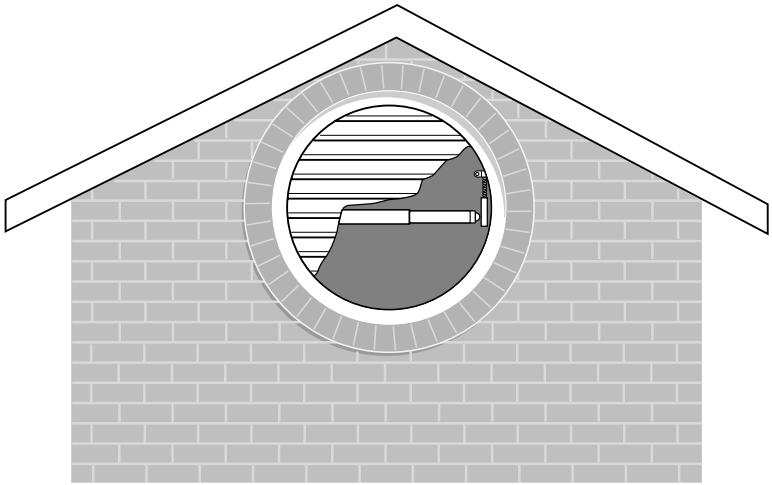
Barrier Bars can be surface or frame mounted in wired or wireless systems. Spring-loaded assembly snaps into place with no screws or drilling. Self-adhesive, epoxy-based switch adheres to brick or cement surfaces, forming a strong, permanent bond.

Select location for switch so that bar crosses center of opening. Remove adhesive backing and press switch in place. Run cable to switch and attach to terminals. Snap bar into place, using spacer for openings wider than 32" (81.3 cm).

Test for proper operation.

RECOMMENDED PRODUCTS

BB-1GS Pressure-Sensitive, BB-2 Mercury Tilt Switch, AMB-1 bracket, OVB-1 vertical bars



PROTECTING MOVABLE OBJECTS
PROTECTING A "VALUABLES" DRAWER

APPLICATION 1 **Surface Mount Contacts**

Valuable coin collections, silverware and jewelry can be protected by arming a storage drawer with either recessed or surface mount magnetic contacts.

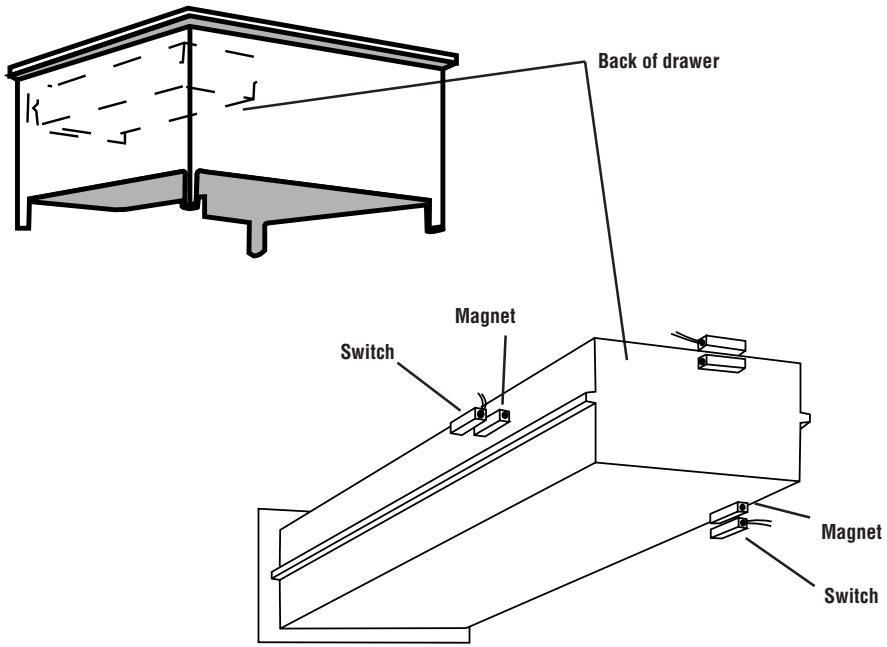
INSTALLATION Because of the difficulty of working with a screwdriver inside a drawer, use a self-adhesive switch. Be certain to clean mounting surfaces with alcohol before attaching contacts. Wide gap switches should be used on steel file cabinets and desk drawers because steel will cut operating distance in half.

Choose mounting locations where switch and magnet will not interfere with operation of drawer. Clearance between moving and non-moving parts may vary.

Install switch in cabinet and magnet on drawer. Or, mount switch and magnet on outside of drawer. If wide gap switch is used, align labels on switch and magnet so "Sentrol" reads in same direction for both (switch is polarity sensitive).

Test for continuity with ohmmeter. Install in alarm loop. If higher security is desired, install on 24-hour loop. Provide a shunt switch in the circuit to permit access as needed.

RECOMMENDED PRODUCTS 1032, 1035, 1082, 1085, 1085T, 1032W, 1035W



PROTECTING MOVABLE OBJECTS
PROTECTING A "VALUABLES" DRAWER

APPLICATION 2 **Recessed Contacts**

Valuable coin collections, silverware and jewelry can be protected by arming a storage drawer with either recessed or surface mount magnetic contacts.

INSTALLATION Recessed mounting is not recommended (and usually not possible) on metal drawers because the metal is usually too thin. On metal drawers, use Sentrol self-adhesive contacts. Allow for a 50% reduction in gap distance if mounted on steel.

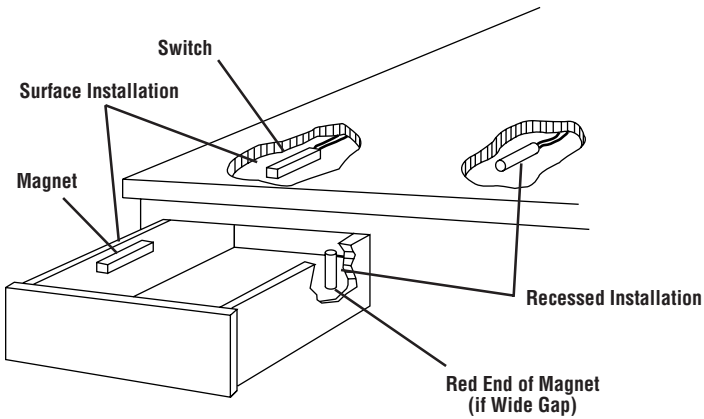
For drawers in which contacts can be recessed, select appropriate switch.

Drill vertical hole in side of drawer. Coat magnet with RTV mounting compound and insert in hole.

Coat switch with RTV mounting compound and attach to cabinet perpendicular to magnet. Magnet must not be centered below switch, but rather, near end of switch. If wide gap switch is used, red tip of magnet must be **away** from switch.

Test for continuity with ohmmeter. Install in alarm loop. If higher security is desired, install on 24-hour loop. Provide a shunt switch in the circuit to permit access as needed.

RECOMMENDED PRODUCTS 1025, 1025W, 1055W, 1059W, RTV 1905



PROTECTING MOVABLE OBJECTS
PROTECTING A CHINA CABINET

APPLICATION 1 **Recessed contacts**

Valuable china and other collectibles can be protected by arming a china cabinet with either recessed or surface mount magnetic contacts.

Notes:

- Alarm both doors if protecting a two-door cabinet. Wire switches in series.
- Do not place contacts in hinged portion of door since door could be opened wide before switch would trip.
- For aesthetic reasons, recessed installation is more desirable than surface mount

INSTALLATION

Choose appropriate concealed contact.
Select positions for magnets in doors, switches in cabinets.

Drill vertical hole in top of door. Coat magnet with RTV mounting compound and insert in hole. If wide gap switch is used, observe correct polarity by mounting bare magnet with red end *toward* switch end with wires.

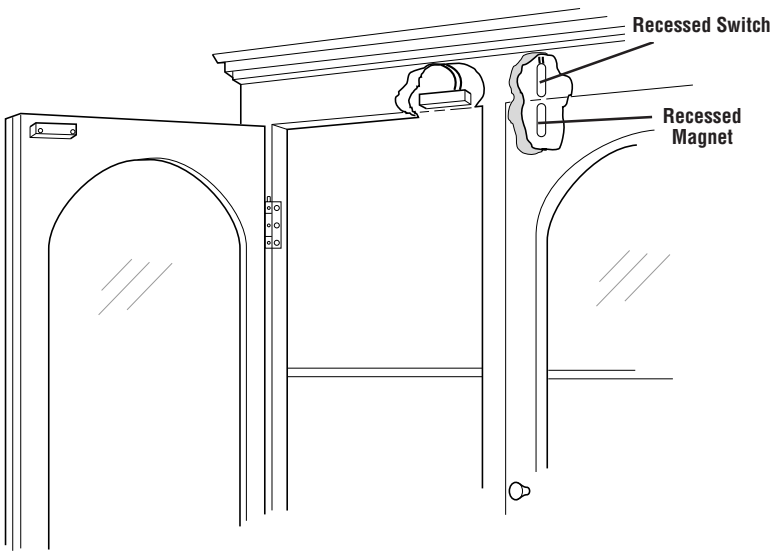
Drill vertical hole in cabinet for switch. Also, drill a hole at an angle from the inside of the cabinet to meet the switch hole so wires can be run to the switch.

Coat switch with RTV mounting compound. Insert switch in hole, fishing wires through to inside of cabinet. Route wires in joint of cabinet, around top of cabinet to back. Drill exit hole for wires through back of cabinet.

Test for continuity with ohmmeter. Install in alarm loop. If higher security is desired, install on 24-hour loop. Provide a shunt switch in the circuit to permit access as needed.

RECOMMENDED PRODUCTS

1055, 1059, 1065, 1075, RTV 1905



PROTECTING MOVABLE OBJECTS
PROTECTING A CHINA CABINET

APPLICATION 2 **Surface mount contacts**

Valuable china and other collectibles can be protected by arming a china cabinet with either recessed or surface mount magnetic contacts.

Notes:

- Alarm both doors if protecting a two-door cabinet. Wire switches in series.
- Do not place contacts in hinged portion of door since door could be opened wide before switch would trip.
- For aesthetic reasons, recessed installation is more desirable than surface mount.

INSTALLATION

Choose appropriate surface mount switch. Where unobtrusive installation is desired and space is at a premium, use 1145W ultra miniature wide gap switch.

Select positions for magnets in doors, switches in cabinets.

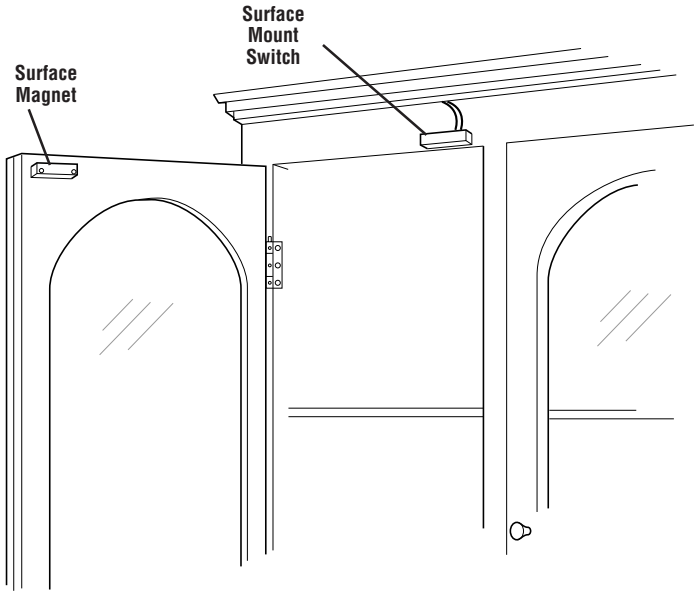
Mount switches and magnets. If wide gap or high security switches are used, align labels on magnet and switch so they read in same direction (switches are polarity sensitive). If using H-Series, observe minimum gap distances.

Route wires in joints of cabinet, around top of cabinet to back. Drill exit hole for wires in back of cabinet.

Test for continuity with ohmmeter. Install in alarm loop. If higher security is desired, install on 24-hour loop. Provide a shunt switch in the circuit to permit access as needed.

RECOMMENDED PRODUCTS

1032, 1035, 1082, 1085, 1085T, H Series, 1145W (wide gap)



PROTECTING GUNS AND GUN CABINETS

APPLICATION

Gun cabinets can be protected like china cabinets on the previous two pages. However, since the glass front to a gun cabinet could be broken, and guns stolen without sounding the alarm, two other methods for protecting guns are provided here.

INSTALLATION

Method 1: Bugging a gun

Select a gun to be "bugged." Drill a 3/4" (1.9 cm) diameter hole in the cabinet butt cutout. Mount roller switch in hole.

If desired, wire into 24-hour circuit to provide protection even when owner is home. All guns may be protected this way.

Instruct user to disarm system before removing gun.

RECOMMENDED PRODUCT

3005, 3008

INSTALLATION

Method 2: MagnaPull™ — For guns on open racks

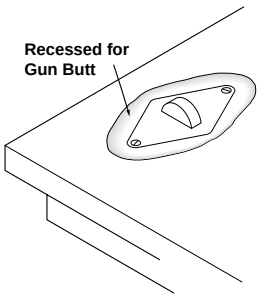
Drill wiring hole through wall near end of gun rack (if rack is mounted on wall). Mount magnet housing on wall or other end of gun rack. Pull wire through trigger guards of all guns.

Insert switch into magnet housing.

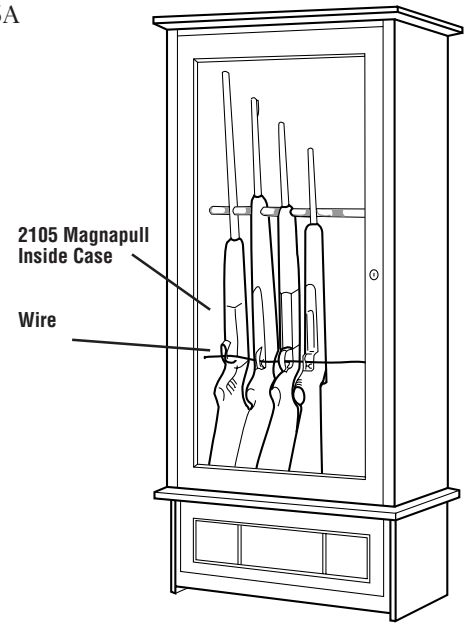
Test for proper operation.

RECOMMENDED PRODUCT

MagnaPull 2105, 2115, 2105A, 2115A



Method 1.



Method 2.

PROTECTING ART OBJECTS

APPLICATION

Art objects such as statuary, vases, chests, or other works of art not in cabinets or other coverings, can be protected with the Sentrol roller magnetic switch.

INSTALLATION

Inspect the flat surface on which will hold the protected art object will rest The art object must exert sufficient weight to fully depress the roller of the switch when the object is in place.

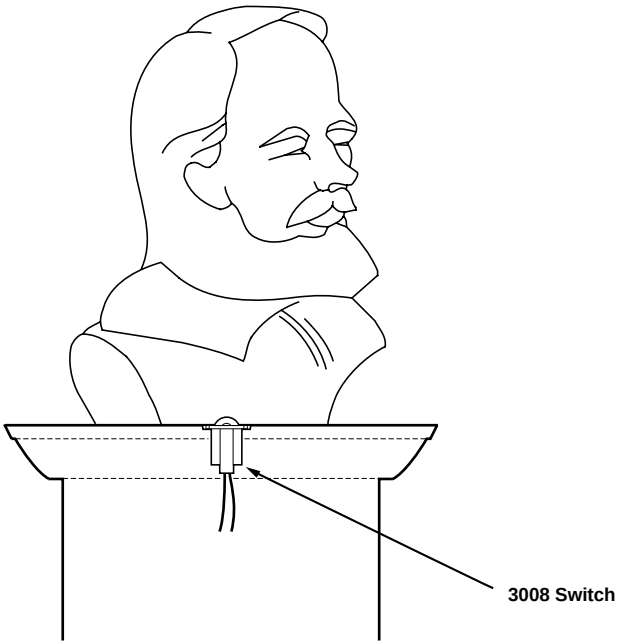
Drill a 3/4" (1.9 cm) diameter hole in the display stand at least 1-1/2" (3.81 cm) deep.

Install the switch, connecting the wires in a 24-hour loop if available to assure protection even if the perimeter loop is inoperative.

If the height of the switch's flange causes the protected object to "rock," recess the switch as shown in the illustration.

RECOMMENDED PRODUCTS

3005, 3008



PROTECTING PAINTINGS AND OTHER HANGING ART OBJECTS

APPLICATION

Paintings and other hanging works of art can be protected with surface or recessed-mount wide gap switches.

INSTALLATION

Inspect frame for area to place magnet and switch.

For surface mount, attach magnet to frame as in Figure 1.

Install switch on wall behind magnet.

For recessed mount, install switch in wall at right angles to magnet, forming an "L" with the switch and magnet as in Figure 2.

Wire into 24-hour loop, if available, to provide protection even if the perimeter loop is off.

Note: Use wide gap switches if gap is more than 1/2" (1.27 cm).

RECOMMENDED PRODUCTS

1035W, 1145W, 1275W

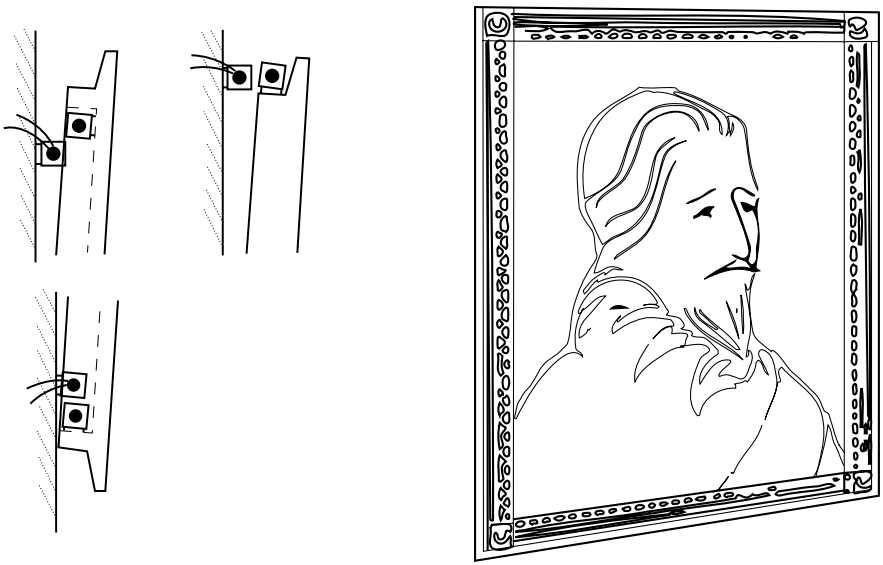


Figure 1.
Surface Installation

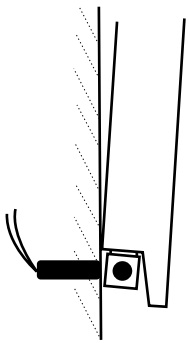


Figure 2.
Recessed Installation

PROTECTING OFFICE EQUIPMENT, COMPUTERS, STEREOS, TVS AND VCRS

APPLICATION

Office equipment, computers, stereos, TVs and VCRs can be protected on a 24-hour loop.

INSTALLATION

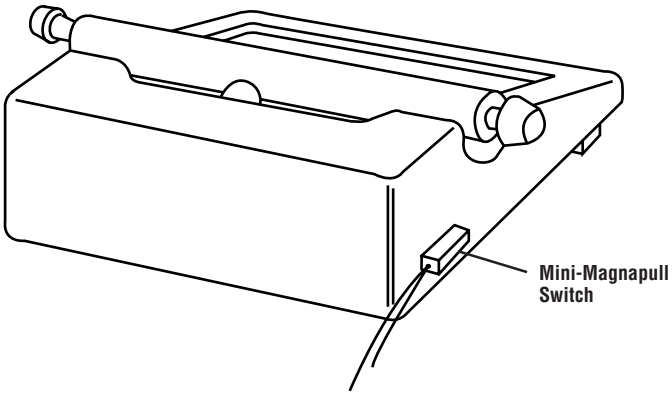
A Sentrol Magnapull™ switch such as the 1005 can be used to protect a single item. Use epoxy or screws (if appropriate for item case) to mount housing receptacle to item to be protected.

Insert reed lead into receptacle. Move equipment around desk or table as in normal use. Determine appropriate length of cord to accommodate minor movements. Affix cord to table using small wire clamp.

Important: Avoid mounting magnet too close to data disks and other media that can be adversely affected by magnetic fields.

RECOMMENDED PRODUCTS

1005



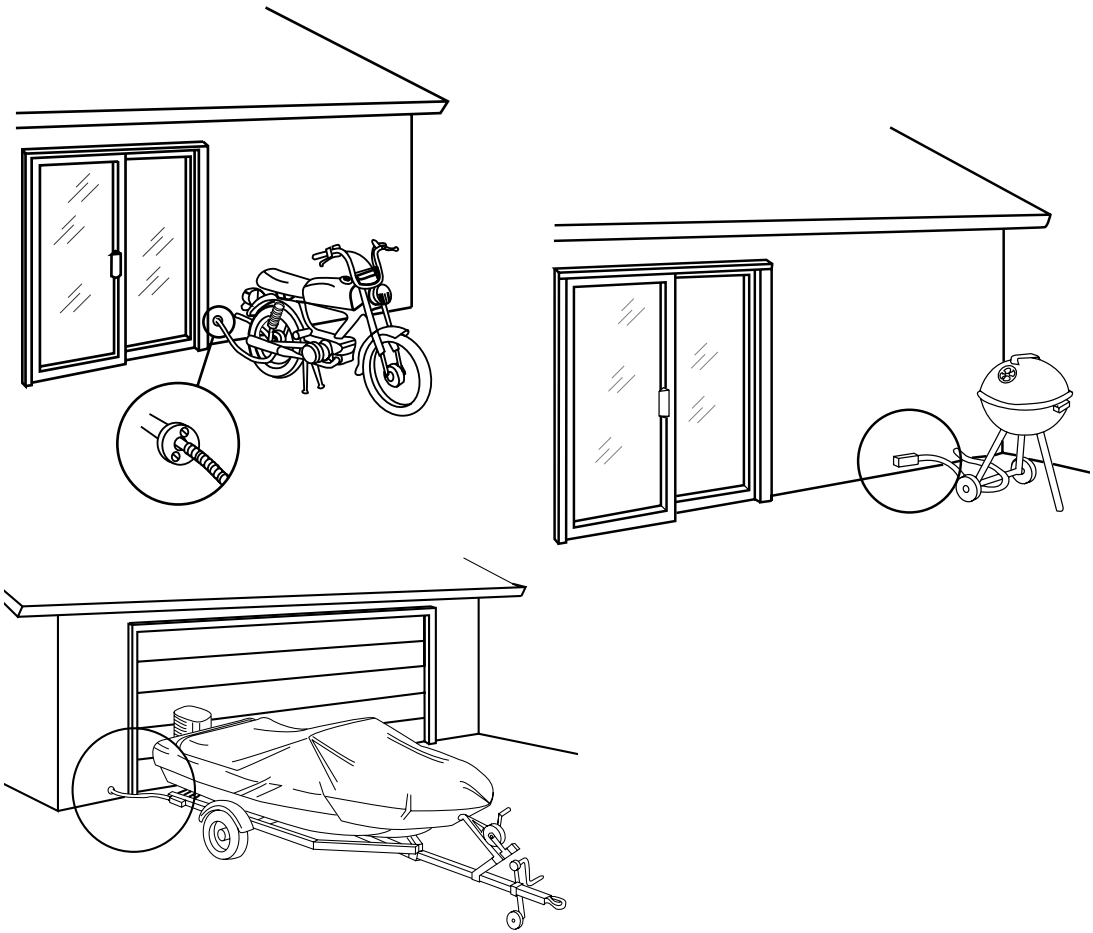
PROTECTING RECREATIONAL EQUIPMENT

APPLICATION Motorcycles, bikes, recreational vehicles, boats and other items can be protected with the Sentrol Magnapull™. For commercial applications, pull armored switch lead through a row of items to be protected.

INSTALLATION Using a Sentrol 2105A or 2115A MagnaPull, extend the switch cable from the house to the item(s) to be protected. Either attach the magnet block to the item(s), or loop the cable through the item(s) and back to the house for connection to the magnet block.

Note: Cables of varying lengths are available from the factory.

RECOMMENDED PRODUCTS 2105A, 2115A



PROTECTING BOATS — DECK AND CABIN PROTECTION

APPLICATION

The interior of a boat can be protected with a magnetic contact in a simple alarm system. Protecting the hatches and companionway can be easily accomplished using recessed or small surface mount switches. Using open circuit switches, a relay, a shunt switch and horn, it is possible to use the boat battery with no power drain.

INSTALLATION

Install a switch and magnet in hatch away from hinges. If hatch is plastic, use surface mount contacts. If wood, use recessed contacts.

Install switch and magnet in sliding companionway boards or door.

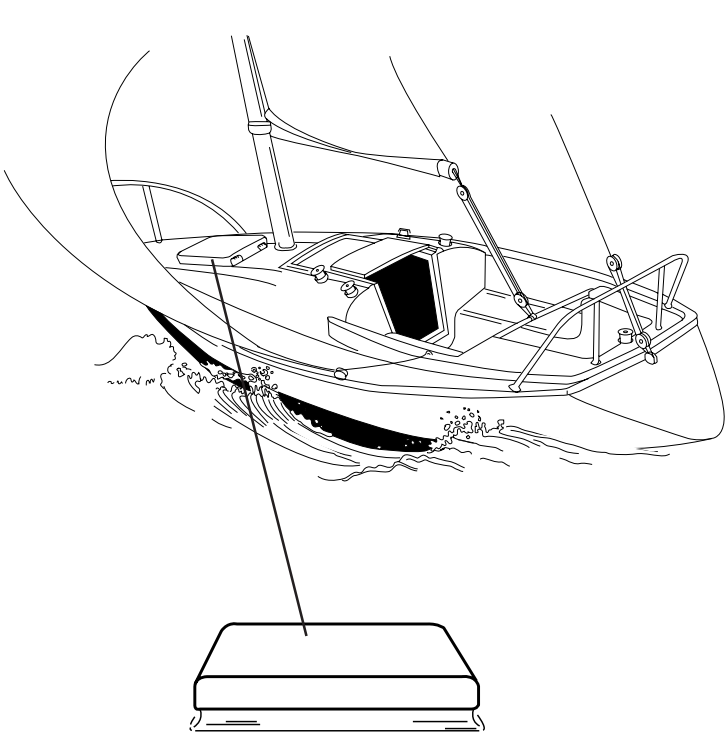
If using open contacts to drive horn, install a latching relay to handle current.

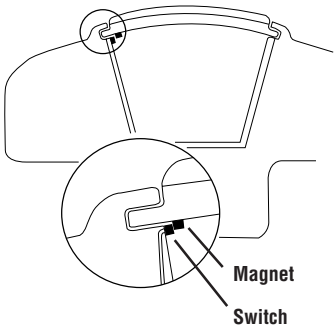
Solder wire connection to prevent corrosion.

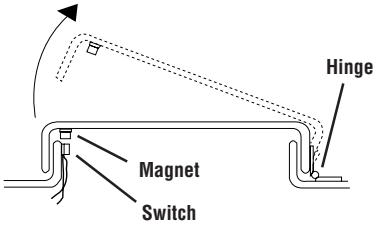
Caution: Magnets affect compass readings. Compass should be checked before and after you install magnetic switches.

RECOMMENDED PRODUCTS

Surface mount — 1033, 1083, 1086; *Recessed* — 1276W







PROTECTING BOATS AT MOORAGES

APPLICATION

You can extend coverage of a marine alarm to the moorage.

INSTALLATION

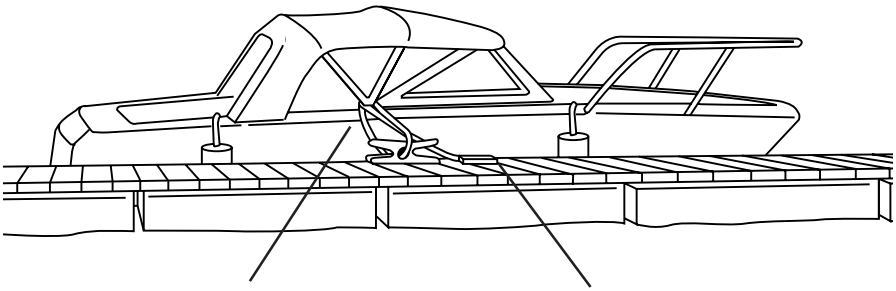
Use a Sentrol 2105A standard-type Magnapull™ to extend coverage of a normal marine alarm to the dock or moorage where the boat is secured. The magnet block may be attached in several locations on the dock depending on the structure of the moorage. It may be possible to mount it in a location where it will not be visible. An extra magnet housing will be required if the boat owner wants to arm the system at a location different from the usual moorage.

For example, it is often possible to run the switch cord through a permanently attached fixture on the dock, such as a cleat or ring, then back to the boat where the magnet housing is attached.

Note: Leads of various lengths are available from the factory.

RECOMMENDED PRODUCTS

2105A



Plan 1: Attach magnet block inside the boat

Plan 2: Attach magnet block to dock

PROTECTING CHAIN-LINK ROLLING GATES

APPLICATION

For most chain-link rolling gates, there is considerable tolerance and leeway in the "closed" position. This makes it difficult to assure proper alignment of the gate switch for alarm protection. This application assures security, particularly when a high-security biased switch is used.

INSTALLATION

Mount switch on fence post using appropriate sized bracket (see Sentrol catalog for bracket selection).

Mount multiple magnets (usually three) on wood strip with 2" (5 cm) spacing center-to-center. Mount board on gate. Be sure to observe polarity of switch and magnets by aligning both so "Sentrol" labels read in same direction. (Observe minimum gap of 3/4" (1.9 cm) when using Sentrol 2507AH switch.)

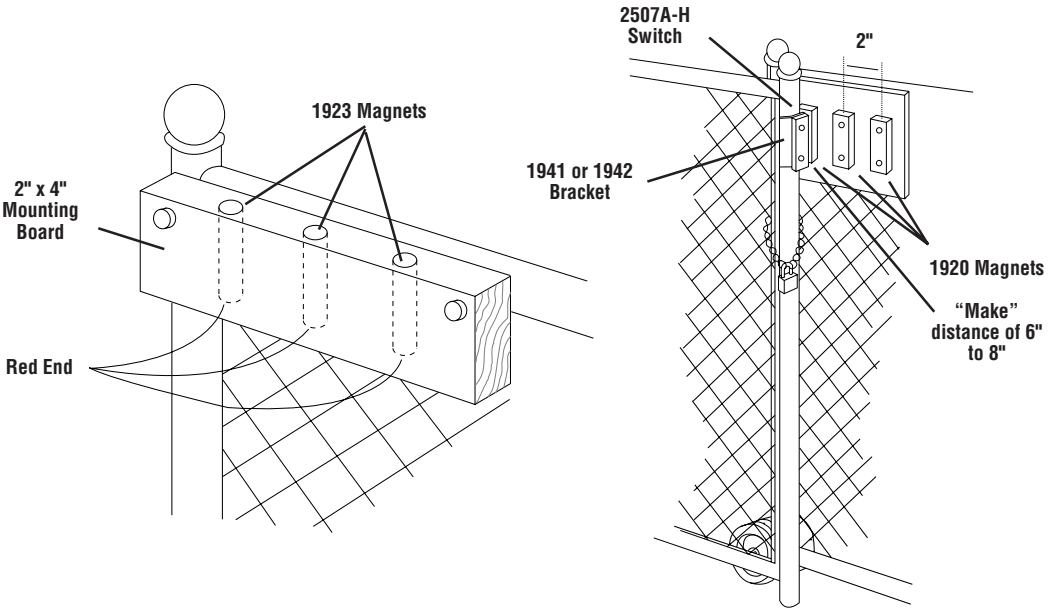
Alternate Installation: Use magnet 1923 as alternate. Mounting board should be 2x4 with 3/8" (0.95 cm) diameter holes (see illustration). Observe minimum gap distance and polarity. Red end of 1923 should be in same direction as wire lead end of switch.

Note: To prevent false alarms, keep gate fastened tight using a chain or other restraining device.

Important: Switch cable of various lengths can be ordered from factory.

RECOMMENDED PRODUCTS

Switch — 2507AH; *Bracket* — 1941, 1942; *Magnet* — 1920, 1923



PROTECTING OTHER FENCE GATES

APPLICATION

Other chain link fence gates can be protected with magnetic contacts. Brackets attach to gate post and gate frame, depending on diameter of post and gate. Switch or magnet may be mounted on inside, outside or side of bracket, depending on space between post and gate.

INSTALLATION

Determine switch and magnet position. Switch has 3' armored cable. Cable may be run to junction box or to inside of pipe for splicing.

Mount brackets on post and gate with masking tape. Swing gate to check clearance. Drill 9/64" (0.36 cm) diameter holes to mount brackets, using self-tapping screws.

Mount switch and magnet to brackets — labels should read in same direction for proper polarity.

Test switch with ohmmeter.

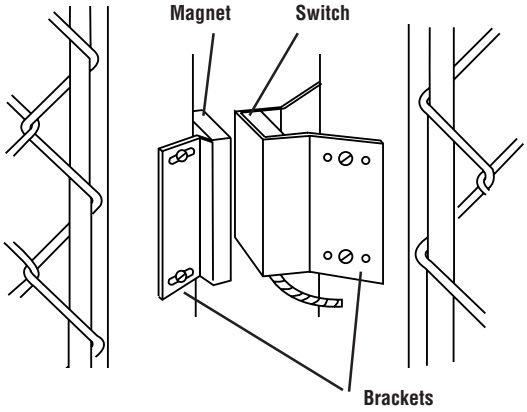
Wire switch into circuit and test.

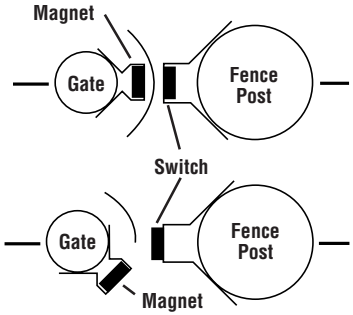
Note: To prevent false alarms, keep gate fastened tight using a chain or other restraining device.

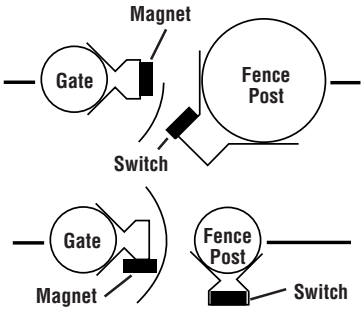
Important: Switch cable of various lengths can be ordered from factory.

RECOMMENDED PRODUCTS

1094A Kit







SILENT PANIC SWITCH AND EMERGENCY ALARM

APPLICATION

Banks, jewelry stores, homes, and other places where people and property are at risk can be protected with a manually operated, silent panic/emergency alarm switch. The Sentrol 3040, with its LED and latching circuit, is ideal for retail outlets and medical care facilities. Sentrol's 3045 Panic Switch is ideal for bedrooms and bathrooms in residential installations. It can be used by someone who is too injured (from falls, burns, heart attacks) to call for help. The 3050 and 3055 feature a glowing LED for low light visibility. The LED glows green when powered up, turns red upon activation. The 3040CT, 3045CT, 3050CT and 3055CT are ideal in garages or other unheated facilities in cold climates. The 3050CT and 3055CT feature a glowing LED for low light visibility. The LED glows green when powered up, turns red upon activation. The 3050CT contains a latching LED, the 3055CT is non-latching.

Note: The 3040 has a separate latching LED circuit. It must be powered and reset by a push-button +5 to 12 VDC source in or mounted outside the alarm panel. The 3045 has no latching LED. The 3050 contains a latching LED, the 3055 is non-latching.

INSTALLATION

Determine the best location for the actuating lever. The switch is most effective when mounted out of view but within convenient reach of the user, as under a counter top or inside the kneehole of a desk. In a residence place no higher than 4' (122 cm) so it can be reached by a person lying on the floor.

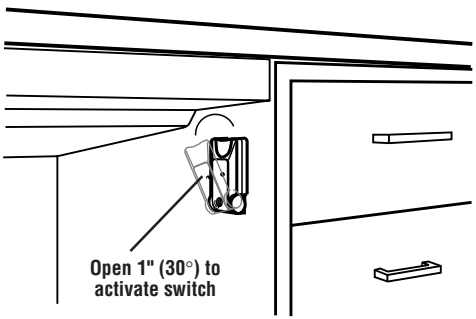
Allow at least 3" (7.62 cm) of clearance above the mounting surface to accommodate the actuating lever when it is fully open. The device can be mounted horizontally or vertically.

Temporarily mount unit with tape and test for ease of operation. Mark holes for screws and a hole for leads. Drill pilot holes or start screws. Connect leads to terminal block inside housing. Snap cover plate in place.

Test unit. Handle pulled approximately 30˚ from the normal locked position will activate alarm circuit and LED circuit — LED will light. With handle open, reset LED circuit by interrupting power to LED circuit. LED will go out. Close handle. Device is now fully re-armed.

RECOMMENDED PRODUCTS

3040, 3045, 3050, 3055, 3040CT, 3045CT, 3050CT, 3055CT



PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 1 **Switch Mounted on Channel**

The 2515A is equipped with the unique Maxi-Gap™ feature that allows a vertical gap distance of 6" and an overall side-to-side gap of 6". Use for installing security switch on channel of overhead doors that do not line up properly, sag, or that are loose and move with wind or vibration.

INSTALLATION

Mount the contact and magnet so both labels read in the same direction. The contact and magnet must be positioned and mounted so that the mounting holes are parallel to one another.

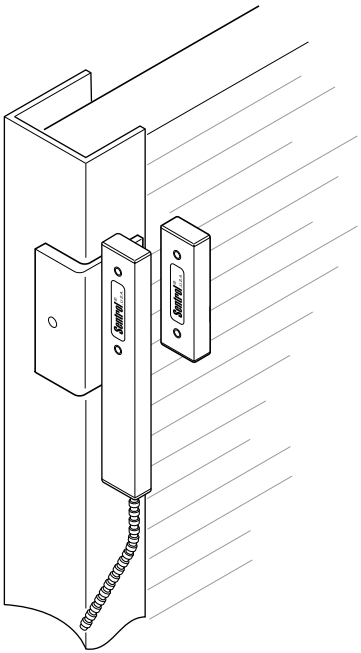
To ensure maximum operating gap or Maxi-Gap™ distance, the magnet should not be mounted more than 3" away from the contact.

If the magnet is mounted 1" away from the contact and is offset by 1" either in front or in back of the contact the unit will maintain a vertical gap distance of 6".

If the magnet is mounted 2" from the contact and is offset by 1" either in front or in back of the contact the unit will maintain a vertical gap distance of 4".

RECOMMENDED PRODUCT

Switch, Magnet, & Bracket included — 2515A



PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 2

Switch Mounted on Channel or Door Lip

Installing security switch on channel or door lip, depending on door construction.

INSTALLATION

Close door. Tape magnet in place with masking tape. Position magnet in recessed portion of slat as close to edge of door as possible. Mount with red end as shown.

Roll up door, making sure magnet clears and does not interfere with operation of door. Close door.

Attach magnet to door with screws.

Attach wires to switch terminals. Attach switch to **outside** of long portion of bracket. Label must be right side up and facing away from door when bracket is mounted on channel.

Attach bracket to channel with self-tapping screws.

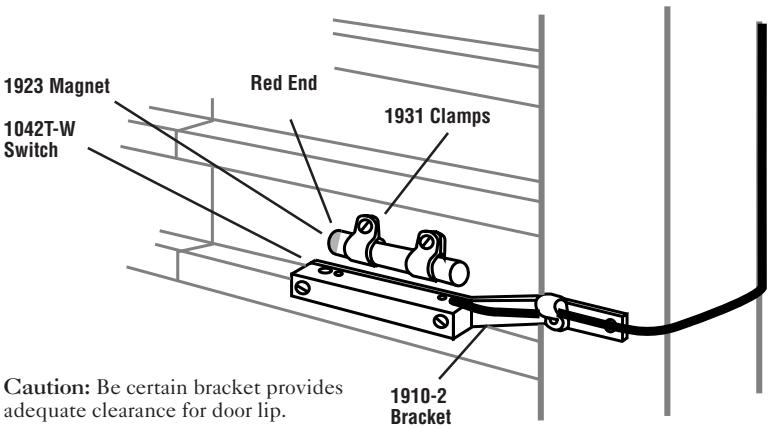
Important: Position bracket so that corner of door lip clears as door is opened and closed.

Test proper operation of switch by closing and opening door.

Dress wire leads with wire clamps and hook into alarm loop. Retest for operation and clearance.

RECOMMENDED PRODUCTS

Switch — 1042TW; *Magnet* — 1923; *Bracket* — 1920-2; *Clamps* — 1931



Caution: Be certain bracket provides adequate clearance for door lip.

PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 3

Switch Mounted on Channel of Curtain Style Overhead Doors

Installing security switch on channel of door, with the magnet mounted horizontally in the door slats.

INSTALLATION

Close the door. Adjust the interlocking bracket into the appropriate slot in the switch housing to fit the specific curtain door channel. Place the unit on the channel making sure the outer lip of the switch housing is positioned so it overlaps the edge of the channel.

Move the switch and bracket assembly so that it is no more than 36-48" from the surface of the floor. This will allow the magnet to roll up with the door without interference.

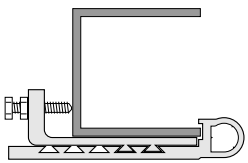
Tighten down the mounting bolt enough to hold the unit in place.

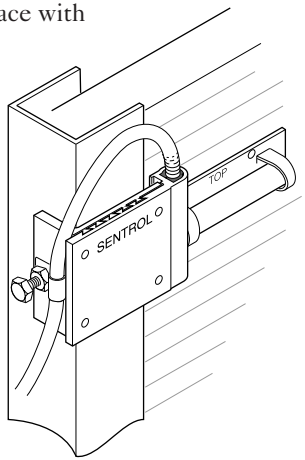
Position the magnet so that the word TOP is reading in the same direction as the Sentrol label on the switch housing, and that the center line of the magnet is aligned with the Sentrol label on the switch housing. The magnet end should be within .25" to .50" from the edge of the switch housing for reliable actuation on heavy steel surfaces.

Connect switch to multimeter to verify functioning. Push firmly on door so that the area the magnet occupies is moved to its farthest position away from the switch in all directions. If the circuit is interrupted slide the magnet closer to the switch assembly. Repeat the above procedures to ensure proper operation. Mark this position on the door.

Once the correct positioning is established, tighten the mounting bolt down and then tighten the lock nut against the housing. For extra mounting strength drill two .150" dia. holes throughout the mounting holes in the housing and fasten with two #8 screws (not provided).

To mount the magnet drill two .150"108 dia. holes through the mounting holes in the magnet housing. Fasten down with two #8 self taping screws that are provided. For faster installation remove magnet. Clean door surface with alcohol pad. Dry area off, and mount with the strips of double stick adhesive tape. Mount the tape to the magnet housing first and then attach the housing to the door, pressing firmly to ensure proper adhesion.





RECOMMENDED PRODUCTS

Switch, Magnet & Bracket Included — 2302, 2304

PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 4 **Using Magnapull™**

A quick and easy way to protect overhead doors is to use the versatile Magnapull™. There are no brackets to adapt and no drilling through thick steel tracks or channels. Magnapull is also ideal for overhead door applications where there is a lot of play in the door.

INSTALLATION

Fasten cable using 1931 wire clamp so that if the switch is dropped it will not hit the floor.

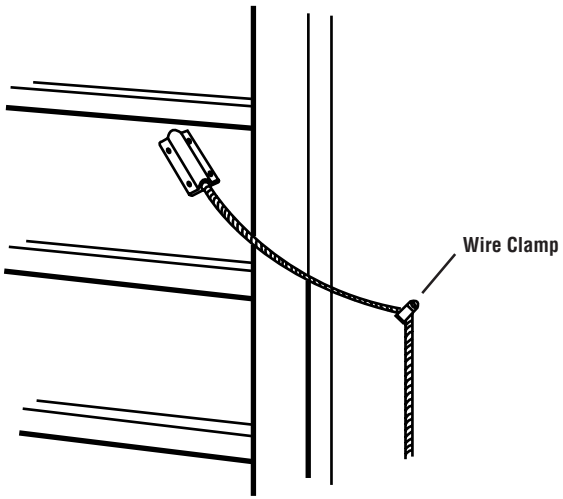
Mount the magnet housing at approximately a 20˚ angle from vertical to prevent switch damage if door is opened before switch is removed. The end user should be instructed to release the Magnapull switch before the door is opened to prevent damage to the switch.

Position cable so there is slack between magnet housing and wire clamp.

Test proper operation of switch by opening door.

RECOMMENDED PRODUCTS

Switch — 2105; *Clamp* — 1931



PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 5 **Track Mounting of Switch**

Installing a security switch on the track of overhead doors.

INSTALLATION

Make sure door does not have a guard that extends around track on bottom of door.

Choose side opposite rope pull or move rope pull to side opposite switch.

Mount bracket 1940 on track with two self-tapping screws. Tighten evenly against track.

Mount switch to bracket 1940.

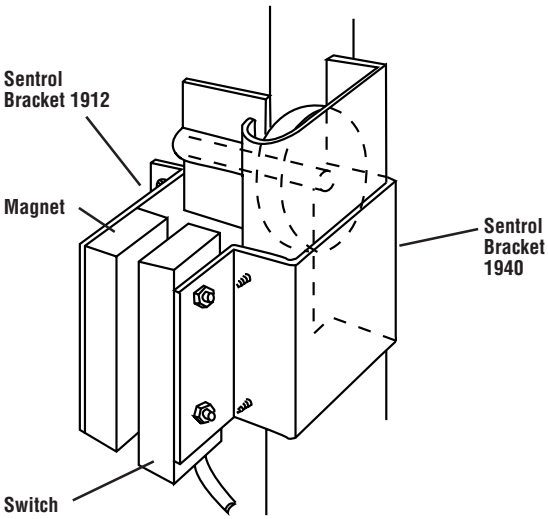
Mount bracket 1912. Mount magnet to bracket, allowing about 1/2" (1.27 cm) gap between switch and magnet. Observe polarity of switch and magnet. Switch and magnet labels **must** read in same direction.

Test for clearance and operation.

Loosen holding screws on 1940 bracket and apply RTV mounting compound to flat side of track. Tighten screws. Retest.

RECOMMENDED PRODUCTS

1092, 1092A Kits (in some applications 1082TW with 1912 and 1940 brackets)



PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 6

Floor Mounted Contacts

There are many different types of overhead and curtain doors with different mounting surfaces — such as ribs and lips. On the following 4 pages we provide a number of methods for protecting overhead and curtain doors. The application on this page involves the use of Sentrol's easy-to-mount 1982 magnet with the 2200-series floor-mounted contacts. The 2200 series contacts have active gap distances up to 3" (7.62 cm) and heavy-duty design.

INSTALLATION

To mount the 1982 universal magnet, use bolts through the steel door, or tap holes for #6 stainless steel combo-head screws. The flange of the magnet features slots, allowing you to move the magnet left or right over the screw heads for best alignment.

RECOMMENDED PRODUCTS

2202A, 2202AU, 2205A, 2205AU.

Figure 1
Lip Mount Application

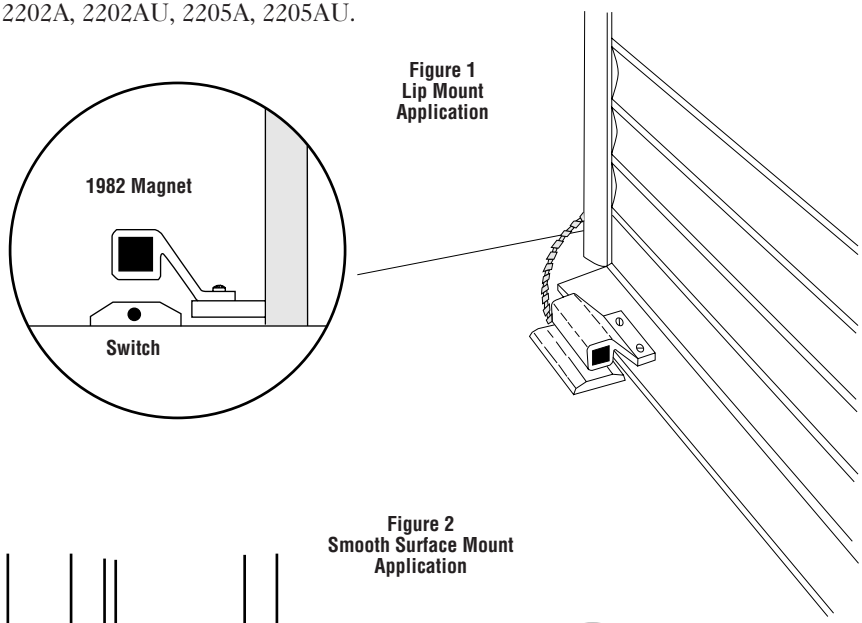
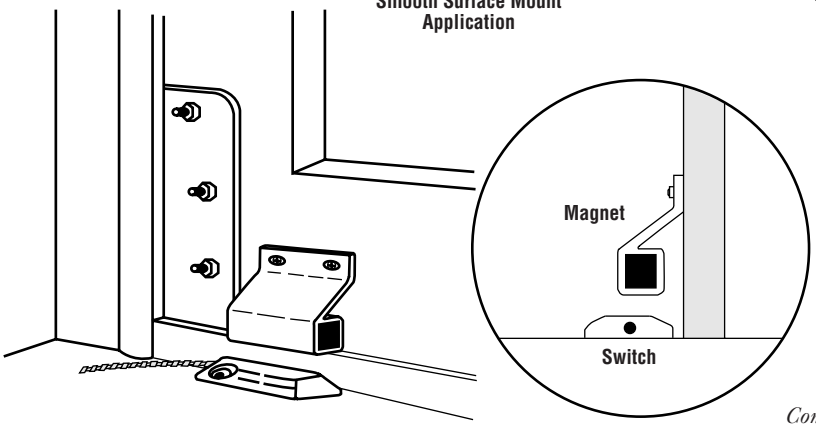


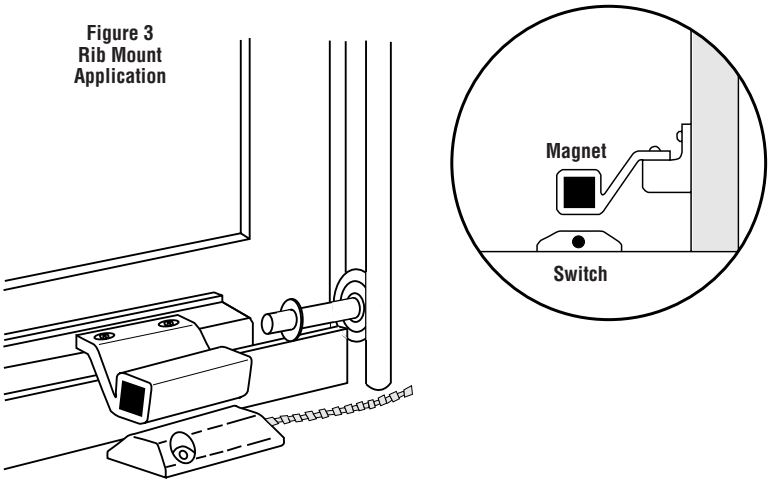
Figure 2
Smooth Surface Mount Application



Continued p. 130

PROTECTING OVERHEAD OR CURTAIN DOORS

Figure 3
Rib Mount
Application



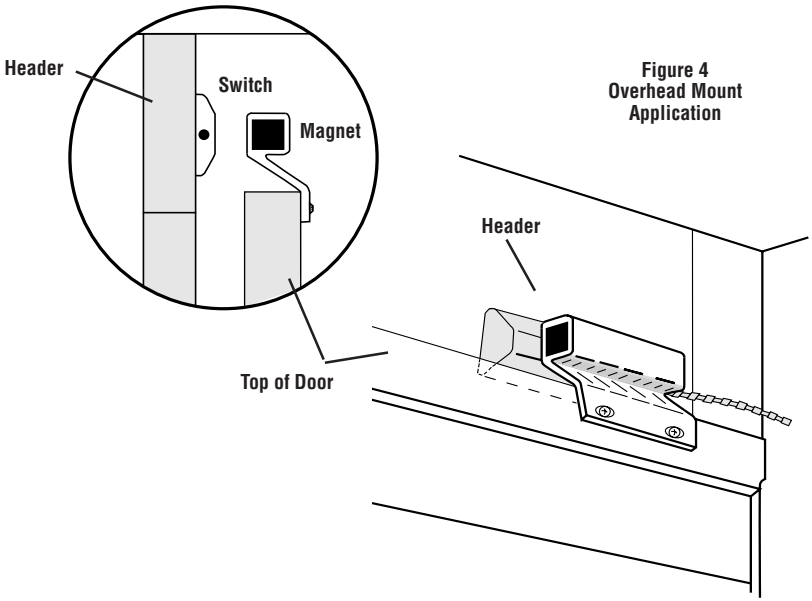


Figure 4
Overhead Mount
Application

PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 7

Switch Mounted on "Stop"

Installing security switch on "stop" near top of overhead curtain type door.

INSTALLATION

Close door. Tape magnet in place with masking tape. Position magnet in recessed portion of slat adjacent to door stop. Mount with red end as shown.

Roll up door, making sure magnet clears and does not interfere with operation of door. Close door.

Attach magnet to door with clamps, or with RTV mounting compound.

Attach wires to switch terminals. Attach switch to inside of long portion of bracket. Label must be right side up and facing toward door when bracket is mounted on stop.

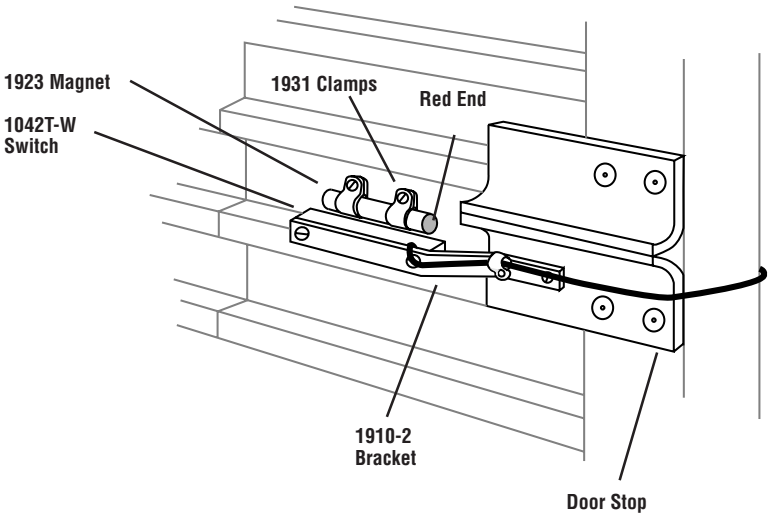
Attach bracket to stop with self-tapping screws.

Test proper operation of switch by closing and opening door.

Dress wire leads with wire clamps and hook into alarm loop. Retest for operation and clearance.

RECOMMENDED PRODUCTS

Switch — 1042TW; *Magnet* — 1923; *Bracket* — 1910-2; *Clamps* — 1931, RTV-1905.



PROTECTING OVERHEAD OR CURTAIN DOORS

APPLICATION 8 **Buried Floor Switch**

Sometimes it is necessary to bury a magnetic contact in the floor, due to construction, or to permit fork lifts and other vehicles to pass in and out. A Sentrol switch has been designed for this installation. It features stainless steel for corrosion resistance and a wide gap operation for loose-fitting overhead doors.

INSTALLATION

Select position of switch that will minimize amount of concrete to be chipped out.

Install magnet on door and lay switch on floor. Test to make sure switch operates with at least 1" (2.54 cm) gap. If not 1", adjust magnet position.

Chip concrete out approximately 1/2" deep x 1/2" wide (1.27 cm x 1.27 cm) for switch and cable.

Lay switch in hole and test. Test— make sure of at least 1/2" extra gap.

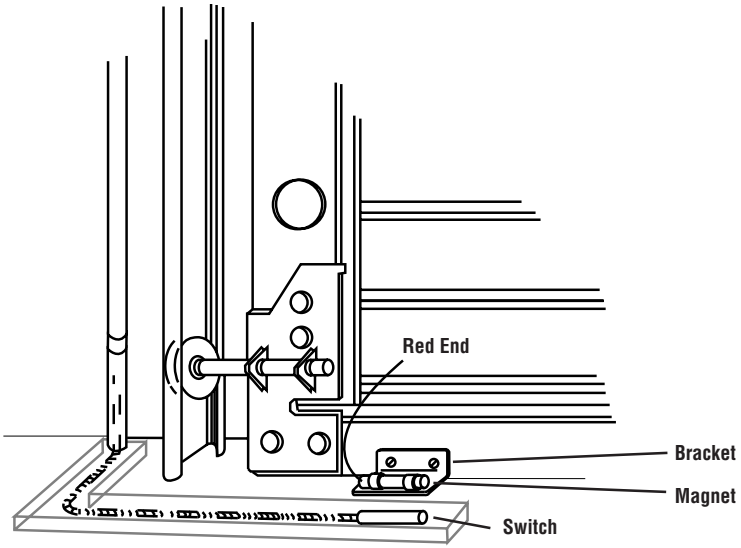
Pull cable through protective conduit and connect to switch.

Test proper operation of switch by closing and opening door.

Cover switch and cable with concrete patch.

RECOMMENDED PRODUCTS

2227A



PROTECTING STEEL DOORS WITH RECESSED TOP

APPLICATION 1 **Recess of 1/2" to 3/4"**

Some steel doors are recessed at the top, creating a large gap which must be overcome when using a concealed magnetic contact. This page and the next two pages give three methods for solving this problem. The different methods are for different size recesses. The first method uses a regular switch with a door recess of 1/2" to 3/4" (1.27 cm to 1.9 cm).

Caution: Consult factory for installations on steel doors without recessed tops.

INSTALLATION

Make sure recess is 1/2" to 3/4" deep.

Carefully align position for switch and magnet.

Drill hole for switch in door frame — 11/16" (1.75 cm) for 1078CW, 15/16" (2.38 cm) for 1078W.

Drill hole for magnet in top of door 9/16" (1.43 cm) for 1078CW, 5/8" (1.59 cm) for 1078W.

Wire switch to loop and insert in frame.

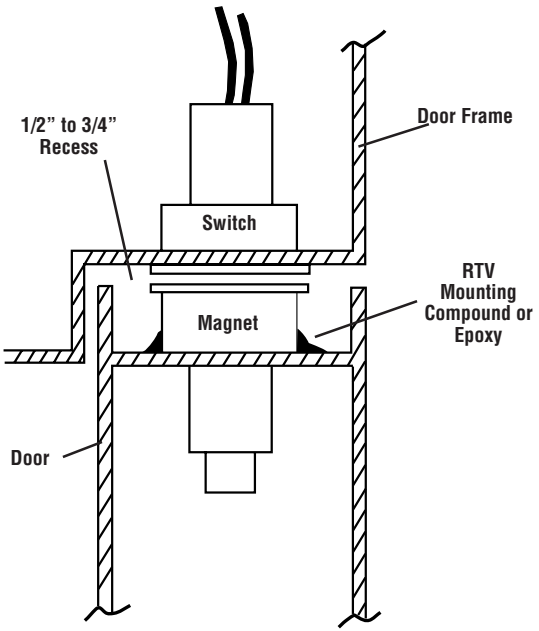
Clean top of door and mount magnet in hole. Hold in place with tape. Close door and test circuit.

Use RTV or epoxy to glue magnet in place.

Retest.

RECOMMENDED PRODUCTS

1078W, 1078CW, RTV 1905



PROTECTING STEEL DOORS WITH RECESSED TOP

APPLICATION 2

Recess of 1/4" to 1/2"

The second method for protecting steel doors with recessed tops involves using a regular switch with a door recess of 1/4" to 1/2"(0.635 cm to 1.27 cm).

Caution: Consult factory for installations on steel doors without recessed tops.

INSTALLATION

Make sure recess is 1/4" to 1/2" deep.

Carefully align position for switch and magnet.

Drill hole for switch in door frame — 11/16" (1.75 cm) for 1078CW, 15/16" (2.38 cm) for 1078W.

Wire switch to loop and insert in frame.

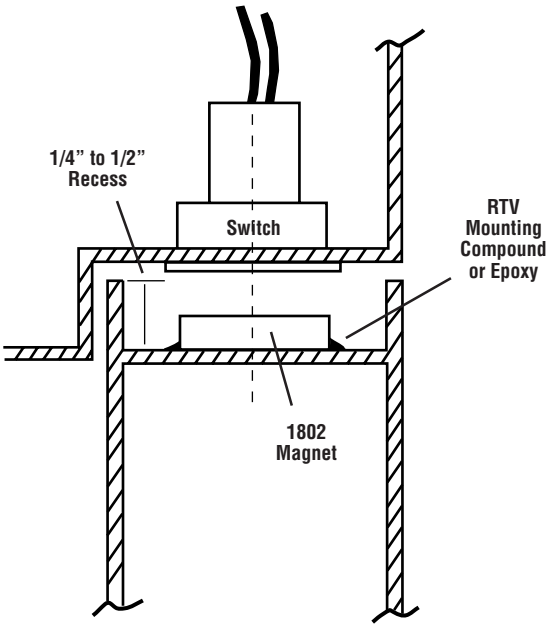
Clean top of door and mount magnet using tape. Close door and test circuit.

Using RTV or epoxy, glue magnet in place.

Retest.

RECOMMENDED PRODUCTS

Switch 1078, *Magnet* 1802, *RTV* 1905



PROTECTING STEEL DOORS WITH RECESSED TOP

APPLICATION 3

Recess of 3/4" or more

The third method for protecting steel doors with recessed tops uses a regular switch with a door recess of 3/4" (1.9 cm) or more.

Caution: Consult factory for installations on steel doors without recessed tops.

INSTALLATION

Make sure recess is at least 3/4" (1.9 cm) deep.

Glue wood block in top of door. The thickness of the block should leave 5/8" (1.59 cm) to the top of the door.

Carefully align position for switch and magnet. The end of the magnet must be centered on the switch as shown.

Drill hole for switch in door frame — 11/16" (1.75 cm) for 1078CW, 15/16" (2.38 cm) for 1078W.

Wire switch to loop and insert in frame.

Drill hole for magnet — 9/16" (1.43 cm) for 1078CW, 5/8" (1.59 cm) for 1078W.

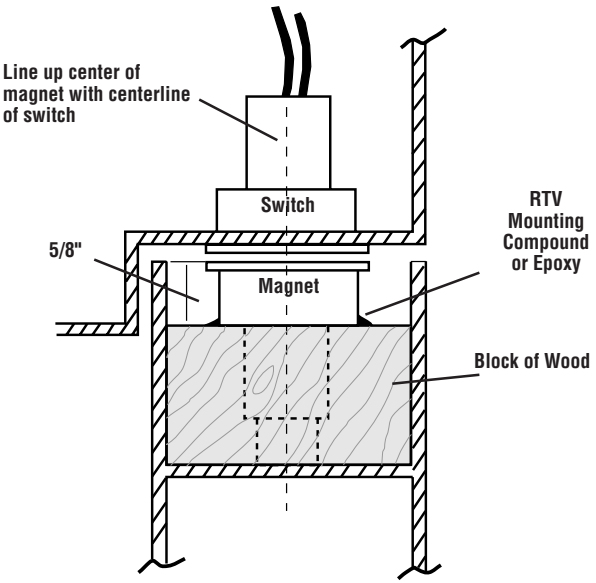
Wire switch to loop and insert in frame.

Using RTV or epoxy, glue magnet in place.

Retest.

RECOMMENDED PRODUCTS

1078CW (wide gap up to 3/4" (1.9 cm)); 1078W (wide gap up to 1" (2.54 cm)), RTV 1905



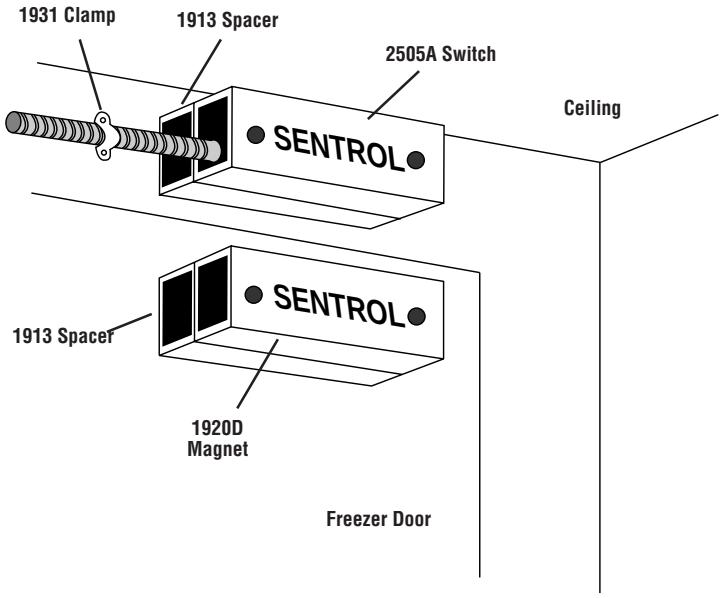
PROTECTING A FREEZER DOOR

APPLICATION Securing a freezer door against unauthorized entry. The Sentrol normally closed 2505A-L5 industrial magnetic contact can withstand condensation or temperatures in freezers down to -40°F.

INSTALLATION The switch and actuating magnet (part 1920D) are mounted with sheet metal screws inside the freezer on the door and door casing as shown. Because steel can decrease the gap of the switch by as much as one half, mount Sentrol 1913 anodized aluminum spacers (1/2" (1.27 cm) thick) under the switch and magnet to decrease the effect of the steel on the magnetic field. The magnet and switch should be at the top of the door to prevent accidental damage to the switch and to discourage tampering. Logos on magnet and switch must read in the same direction as shown (the switch is polarity sensitive).

Test using ohmmeter.

RECOMMENDED PRODUCTS *Switch* — 2505A-L5; *Spacer* — 1913; *Magnet* — 1920D; *Clamp* — 1931.



PROTECTING REVOLVING DOORS

APPLICATION

Steel or aluminum revolving doors can be secured in several ways, depending upon their material and the availability of mounting space.

INSTALLATION

For doors accessible from the top: Lock door to check its position when secured. Mark top, side or floor where you will place the switch.

Place switch in top or canopy of the assembly. Offset it slightly as magnet will be positioned on side of door. Drill a 15/16" (2.38 cm) diameter hole. When mounting, use RTV mounting compound (Figure 1).

Place magnet on door as close to rubber gasket as possible (Figure 1). Observe Polarity. If mounting magnet on steel, use spacer or order a special magnet containing two magnets inside the housing. When using a surface mount magnet with the 1078W, position the left end of the magnet as you read the logo, centered off the end of the switch (Figure 3).

For doors NOT accessible from the top: Mount switch on side of door in wall (Figure 3).

Another mounting method is to bury the switch in the floor and mount the magnet to the bottom of the door (Figure 2).

Note: Some systems incorporate an electro-magnetic break-away device, usually located in the drum. Locate the magnetic contact far enough away to prevent adverse effects to magnet. Stainless steel armored cable is available if the switch will be exposed. Consult factory.

RECOMMENDED PRODUCTS

Switch — 1078W, *Magnet* — 1080T (Figures 1 & 2);
or, *Switch* — 2227A, *Magnet* — 1920D (Figure 3), RTV 1905

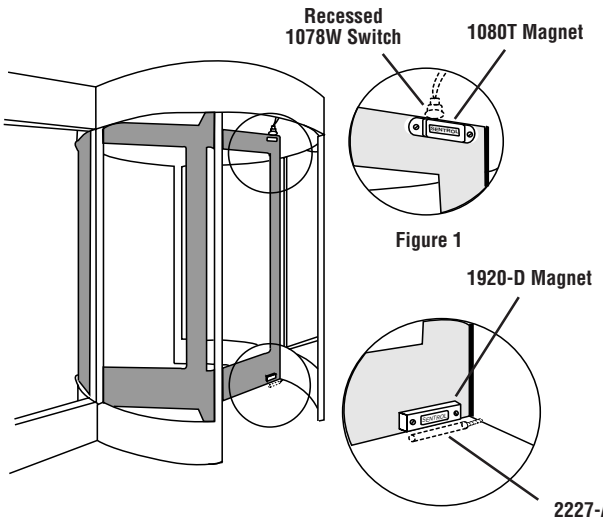
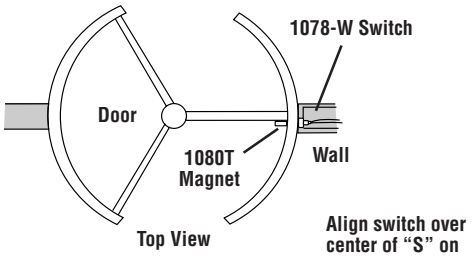


Figure 1



Top View

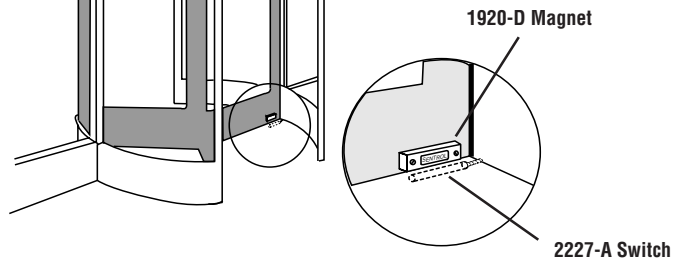
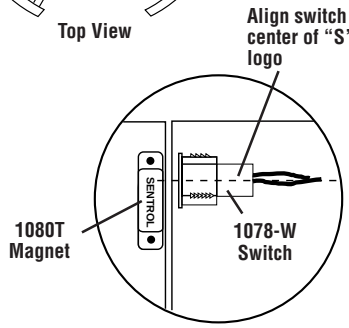


Figure 2



Side View

PROTECTING DEEPLY RECESSED DOORS

APPLICATION

Surface Mount Applications

Five methods are presented here for protecting deeply recessed doors with surface mount contacts. Note that when mounting on steel, a spacer should be used behind the switch, and/or a wide gap switch should be used.

INSTALLATION

Method 1: Magnet with Spacers

Sentrol has a range of spacers available for each contact series. Stack spacers until magnet aligns with switch when the door is in the closed position.

Method 2: Switch on Inside of Jamb

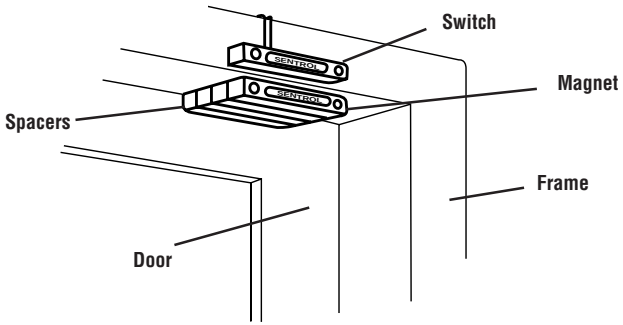
This is a desirable mounting technique because no brackets are required. Use only on a door with a reliable stop so that the door cannot swing inward and hit the switch.

Method 3: 1082, 1085T, or 1045T Series with Bracket

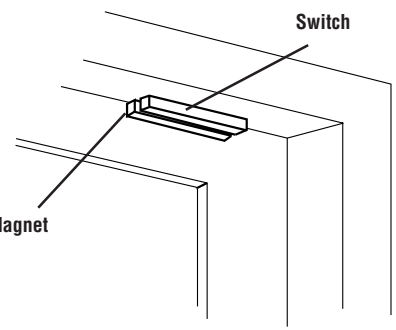
Verify that the distance from the inside of door frame to inside of door does not exceed 1" (2.54 cm). If over 1" this application cannot be used — use Methods 4 and 5.

RECOMMENDED PRODUCTS

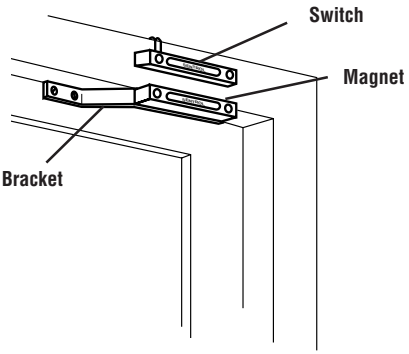
1082W or 1085TW with 1910 bracket, or 1045T with 1910-2 bracket



Method 1



Method 2



Method 3

PROTECTING DEEPLY RECESSED DOORS

APPLICATION

Surface Mount Applications

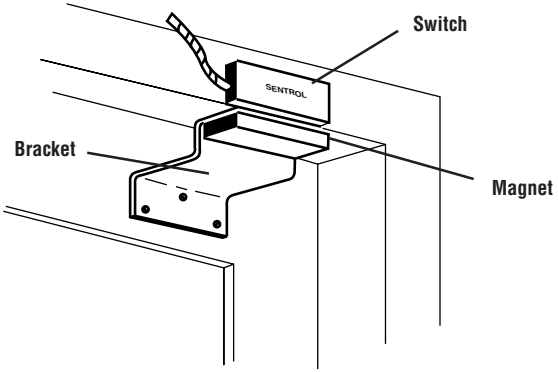
INSTALLATION

Method 4: 1045T, 2500, or 1085T with Bracket

Verify that the distance from the inside of door frame to inside of door does not exceed 2" (5.08 cm). Align and mount as shown.

RECOMMENDED PRODUCTS

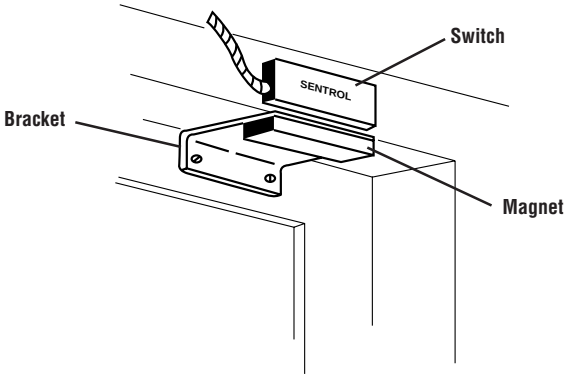
1045T with 1912-2L bracket; 2500 with 1912 L-bracket; 1085TW with 1911 L-bracket.



Method 5: 2500 Series and 1940-1 Bracket

Verify that the distance from the inside of door frame to inside of door does not exceed 3" (7.62 cm). Align and mount as shown.

2505A with 1940-1 bracket



PROTECTING ROOF HATCHES

APPLICATION

Entry via a roof hatch can be thwarted by using Sentrol surface mount switches. The switch used will depend upon the mounting method required by the space available and the connection into the alarm circuit.

INSTALLATION

In hatch protection, it is important to mount both switch and magnet so they will not intrude into open hatch space where they can catch on clothing and restrict entry or egress.

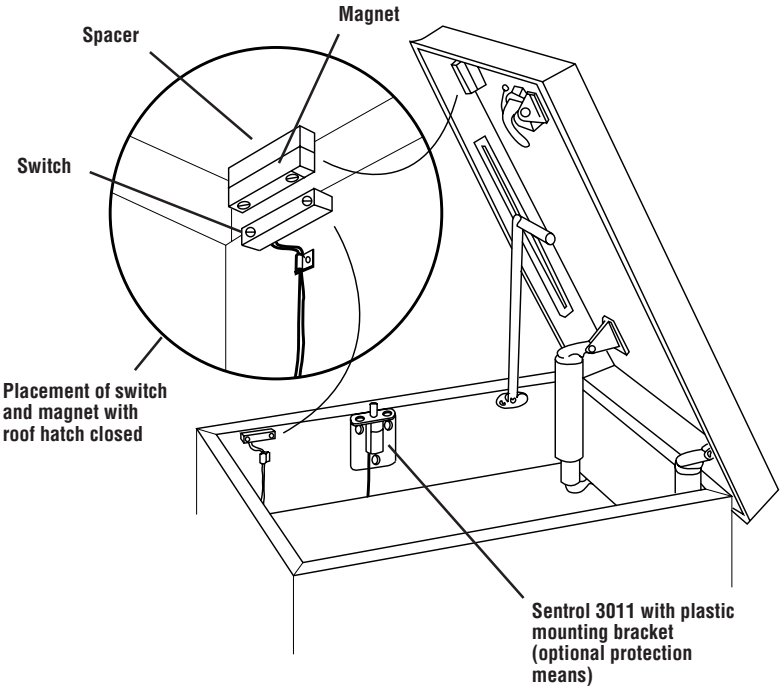
Attach the selected switch on the hatch frame opposite the hatch hinges. Do this while keeping in mind the position of the magnet, and recognizing the need to keep gap distance between switch and magnet within specified tolerance. When installed, switch and magnet must be parallel for best operation.

If roof hatch and/or frame is steel, gap distance is usually halved, so allowance must be made for this. Or, use Sentrol wide gap switches. Mount both switch and magnet with the Sentrol name reading in the same direction (switch is polarity sensitive).

After installation, check for proper operation and circuit continuity by opening and closing the hatch.

RECOMMENDED PRODUCTS

1032, 1045T, 1082, 1085 or 1085T, 1032W, 1045TW, 1082W, 1085W, 3011; *Spacers* — 1914T for 1045T switch, or 1906T for 1082 switch.


Magnet
Spacer
Switch
Placement of switch and magnet with roof hatch closed
Sentrol 3011 with plastic mounting bracket (optional protection means)

PROTECTING CASH REGISTER DRAWERS WITH BILL TRAP™

APPLICATION

You can alert authorities to unauthorized removal of money from cash register drawers with Sentrol's Bill Trap. This simple device holds paper currency between a magnetized clip and a back plate that contains magnetic reed contacts. Mounted in a drawer and wired to an open or closed loop, the Bill Trap will activate the alarm circuit when the currency in it is removed. Because the actuating magnet and contacts are built into the Bill Trap, no mounting of separate components is required. And the Bill Trap mounts with adhesive tape, so drilling is required only for running wire.

INSTALLATION

Determine best placement of unit (take into account length of currency).

Drill 1/4" (0.635 cm) diameter hole through back of drawer. (Leads can run over top of drawer if there is clearance. Consult Sentrol for special lead types and lengths.)

Pull wire and connect to service loop.

Temporarily mount Bill Trap. Insert currency between Bill Trap's clip and back plate.

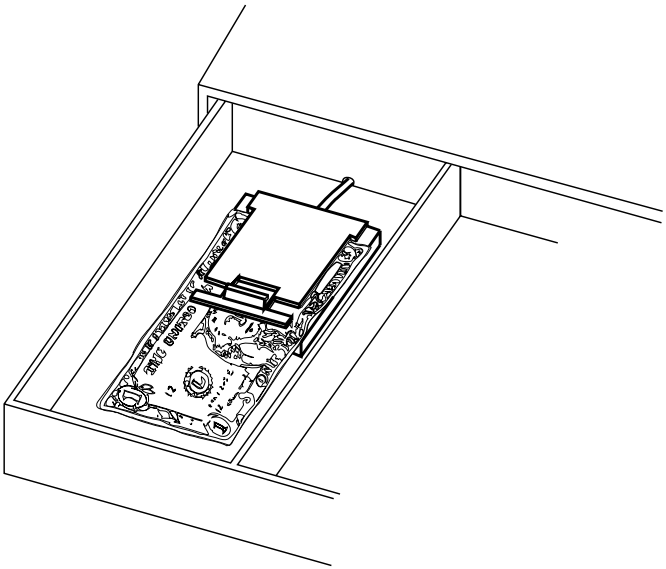
Test for proper operation.

Clean underside of Bill Trap and bottom of cash register drawer or tray with alcohol.

Use double-sided sticky tape to adhere Bill Trap to surface.

RECOMMENDED PRODUCTS

3555



24-HOUR PROTECTION OF METAL ENCLOSURES

APPLICATION

Protecting against unauthorized access to a control panel, bell box or any metal enclosure with a metal lid, eliminates the need for costly lining. Magnetic sensors provide protection against tampering, as through the key hole or lock mechanism, while shock sensors (see Glassbreak applications) provide protection against other types of forced entry. The magnetic contacts are connected to the control's 24-hour loop.

INSTALLATION

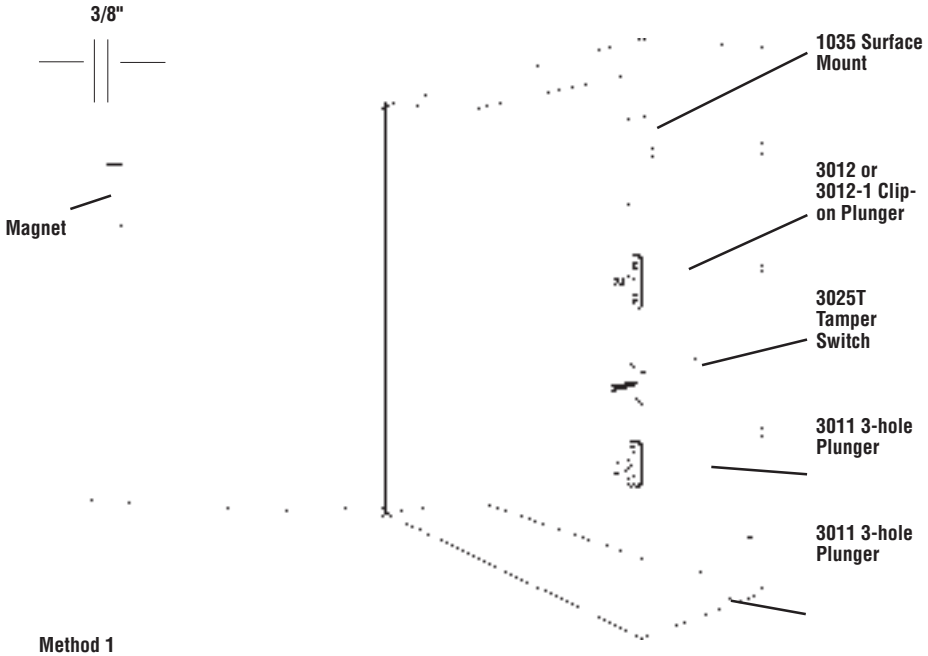
Tamper Protection

Surface Mount: Use a Sentrol surface-mount, self-adhesive switch. With self-adhesive contacts, such as the 1035, locate switch on side or bottom of cabinet about 3/8" (0.95 cm) from front edge. Align magnet and mount. Test for operation with ohmmeter.

Plunger Switch: Sentrol offers several plunger switches for tamper protection. All are hermetically sealed and reed actuated for positive operation on seldom-used enclosure openings.

RECOMMENDED PRODUCTS

1035 self-adhesive magnetic contact; 3012 clips on 0.04" to 0.07" (0.10 to 0.18 cm) thick sheet metal; 3012-1 clips on 0.08" to 0.12" (0.20 to 0.30 cm) thick sheet metal; 3025T with shunt capability for servicing.



Method 1
Tamper Protection

"SILENT" ALARM FOR BANKS AND JEWELRY STORES

APPLICATION

Banks, jewelry stores, and other retail facilities with cash and valuables can be protected with a manually operated switch. Sentrol's 3040 and 3045 feature internal magnetic contacts and an actuating lever with a magnet cradled in it. When the lever is pulled, the SPDT circuit closes or opens, activating the alarm. Mounted under a counter top or inside the kneehole of a desk, the device offers protection for employees in potentially high-risk businesses.

Note: The 3040 has a separate latching LED circuit. It must be powered and reset by a push-button +5 to 12 VDC source in or mounted outside the alarm panel. The 3045 has no latching LED.

INSTALLATION

Determine the best location for the actuating lever. It is most effective when mounted out of view but within convenient reach of the user.

Make sure you allow at least 3" (7.62 cm) of clearance above the mounting surface to accommodate the actuating lever once it is fully open. The device can be mounted horizontally or vertically.

Temporarily mount unit with tape and test for ease of operation. Mark holes for screws and a hole for leads.

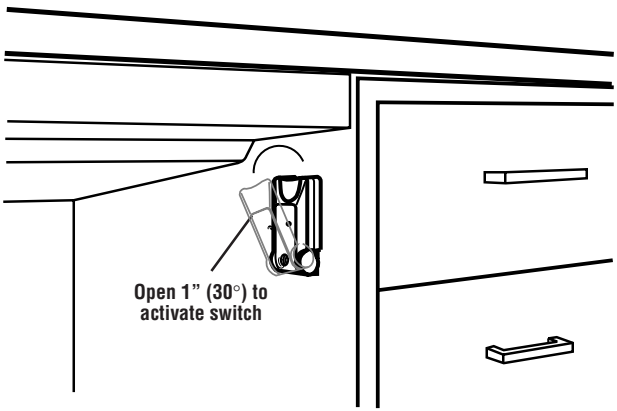
Drill pilot holes or start screws. Connect leads to terminal block inside housing. Snap cover plate in place.

Test unit. Handle pulled approximately 30° from the normal locked position will activate alarm circuit and LED circuit — LED will light. With handle open, reset LED circuit by interrupting power to LED circuit. LED will go out.

Close handle. Device is now fully re-armed.

RECOMMENDED PRODUCTS

3040, 3045, 3050, 3055



PROTECTING TRUCKS AND TRAILERS AT LOADING DOCKS

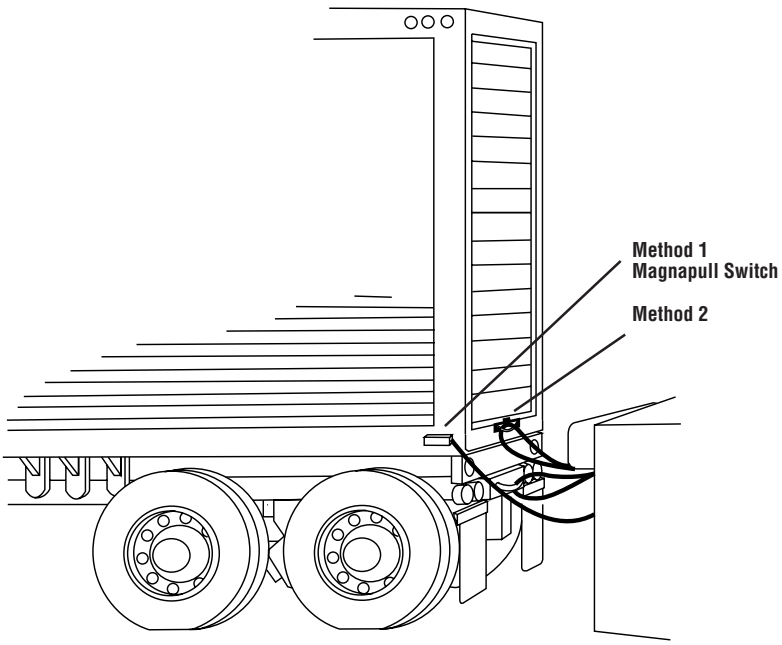
APPLICATION Trucks and trailers can be secured with Sentrol's MagnaPull™ at loading docks.

INSTALLATION Extend a Sentrol 2105A or 2115A standard Magnapull unit from the perimeter loop on each loading dock. There are two different mount methods.

Method 1: A magnet block can be affixed to the trailer so that when the trailer is in the loading dock, the switch cord can be plugged in. In this case, an extra magnet block will be needed on the dock for storing the switch cord when the loading dock is vacant.

Method 2: Run the switch cord through a permanently attached part on the trailer and then back to the dock and the magnet block.

RECOMMENDED PRODUCTS 2105A, 2115A



PROTECTING TRUCK TAILGATES

APPLICATION

Roll-up truck tailgates can be protected with magnetic contacts that have sufficient durability, gap and vibration resistance.

INSTALLATION

Select location for switch on wood or aluminum on the truck side just forward of the track. It is best to mount near the top, at a point where the track starts bending.

Install by placing spacers behind switch to build out slightly beyond track.

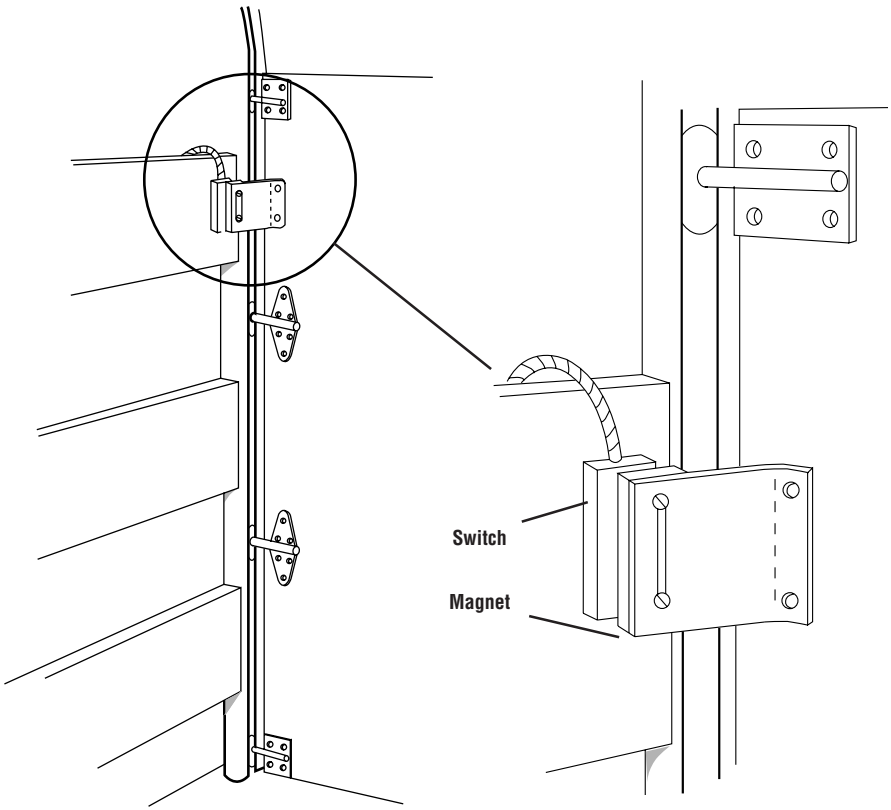
Mount magnet on tailgate door using bracket. Position magnet and switch as close as possible with door closed. Mount end of magnet about 1/2" (1.27 cm) past end of switch. Make sure Sentrol labels read in same direction.

Test. Wire in leads and dress wires into place.

Do not hook directly into high-current circuit, such as vehicle horn. Use relay if switching more than 1/4 amp.

RECOMMENDED PRODUCTS

2507A



SILENT PANIC SWITCH FOR WALK-IN FREEZERS

APPLICATION

Installing a silent panic switch in a walk-in freezer to prevent accidental lockup or intentional imprisonment of a person inside a walk-in freezer. The Sentrol 3040CT, 3045CT, 3050CT and 3055CT have been specifically modified for low-temperature use in walk-in freezers. The 3050CT and 3055CT feature a glowing LED for low light visibility. The LED glows green when powered up, turns red upon activation. The 3050CT contains a latching LED, the 3055CT is non-latching.

INSTALLATION

The best location for the freezer switch is mounted inside the freezer, at some point between the floor and 4" (10.2 cm) below the door knob. The switch should be able to be reached by someone lying on the floor.

Temporarily position the 3040CT or 3045CT where it will be mounted and mark the screw holes and the hole for the leads. Drill pilot holes or start the screws. Insert the screws through the switch housing and tighten firmly in place.

Note: The 3040CT has a separate latching LED circuit. It must be powered and reset by a push-button +5 to 12 VDC source in or mounted outside the alarm panel. The 3045CT has no latching LED.

Test the 3040CT by pulling the handle down until the LED lights. Close the handle. Activate the normally closed push-button or toggle switch located in the master control panel to interrupt power to the latching LED. The LED will go out.

Test the 3045CT by pulling the handle down.

RECOMMENDED PRODUCTS

3040CT, 3045CT, 3050CT, 3055CT